

SEQUENCE LISTING

<110> Kapeller-Libermann, Rosana
Acton, Susan L.

<120> 59079 and 12599, Protein Kinase Family
Members and Uses Therefor

<130> MPI2001-047P1RCP1(M)

<150> 60/269201
<151> 2001-02-15

<160> 9

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<220>

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<222> (72)...(7964)

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Gly Pro Asp Glu Pro Glu Glu Lys Pro Ala Ser Asp Val His Glu Gln
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Leu Val Pro Pro Arg Met Leu Glu Arg Phe Thr Pro Lys Lys Val Lys
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Lys Gly Ser Ser Ile Thr Phe Ser Val Lys Val Glu Gly Arg Pro Val
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Pro Thr Val His Trp Leu Arg Glu Glu Ala Glu Arg Gly Val Leu Trp
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Ile Gly Pro Asp Thr Pro Gly Tyr Thr Val Ala Ser Ser Ala Gln Gln
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His Ser Leu Val Leu Asp Val Gly Arg Gln His Gln Gly Thr Tyr

95

100

105

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gaa gcg ctg att tcc act ttc ctg cag ggg acc aca caa gcc atc tca Glu Ala Leu Ile Ser Thr Phe Leu Gln Gly Thr Thr Gln Ala Ile Ser 145 150 155	542
gca cag ggg ttg gaa act gcg agt ttt gct gac ctt ggt ggg cag agg Ala Gln Gly Leu Glu Thr Ala Ser Phe Ala Asp Leu Gly Gly Gln Arg 160 165 170	590
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gct gag gtg ggc aca gag gag ttc ctg cag aaa ctg acc tcc cag atc Ala Glu Val Gly Thr Glu Glu Phe Leu Gln Lys Leu Thr Ser Gln Ile 190 195 200 205	686
act gag atg gta tcg gcc aag atc acg cag gcc aag ctg cag gtg ccc Thr Glu Met Val Ser Ala Lys Ile Thr Gln Ala Lys Leu Gln Val Pro 210 215 220	734
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tca gag gac ggc gat gcc cga ggc gag atc ttt gac atc tac gtg gtc Ser Glu Asp Gly Asp Ala Arg Gly Glu Ile Phe Asp Ile Tyr Val Val 255 260 265	878
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gac cag gtg gag ggg gat gac cgc gcc ttc gag gtg tgg cag gag cgg Asp Gln Val Glu Gly Asp Asp Arg Ala Phe Glu Val Trp Gln Glu Arg 625 630 635	1982
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aac aag ttc cag aca ctg agt gag cct cgc agc ggc ctg cta gtg ctg Asn Lys Phe Gln Thr Leu Ser Glu Pro Arg Ser Gly Leu Leu Val Leu 815 820 825	2558
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Val Ile Arg Ala Ala Ser Lys Glu Asp Leu Gly Leu Tyr Glu Cys Glu			
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ctg gtg aac cgg ctg ggc tcc gcg cggt gct agt gcg gag ctg cgc att			2654
Leu Val Asn Arg Leu Gly Ser Ala Arg Ala Ser Ala Glu Leu Arg Ile			
850	855	860	
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Gln Ser Pro Met Leu Gln Ala Gln Glu Gln Cys His Arg Glu Gln Leu			
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Val Ala Ala Val Glu Asp Thr Thr Leu Glu Arg Ala Asp Gln Glu Val			
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Thr Ser Val Leu Lys Arg Leu Leu Gly Pro Lys Ala Pro Gly Pro Ser			
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Thr Gly Asp Leu Thr Gly Pro Gly Pro Cys Pro Arg Gly Ala Pro Ala			
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ctc cag gaa acc ggc tcc cag ccc cca gtc acc gga act tcg gag gca			2894
Leu Gln Glu Thr Gly Ser Gln Pro Pro Val Thr Gly Thr Ser Glu Ala			
930	935	940	
cct gcc gtg ccc ccg agg gtg cca cag ccc ctc ctc cac gaa ggc cca			2942
Pro Ala Val Pro Pro Arg Val Pro Gln Pro Leu Leu His Glu Gly Pro			
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Glu Gln Glu Pro Glu Ala Ile Ala Arg Ala Gln Glu Trp Thr Val Pro			
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Ile Arg Met Glu Gly Ala Ala Trp Pro Gly Ala Gly Thr Gly Glu Leu			
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Leu Trp Asp Val His Ser His Val Val Arg Glu Thr Thr Gln Arg Thr			
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tac aca tac cag gcc atc gac acg cac acc gca cgg ccc cca tcc atg			3134
Tyr Thr Tyr Gln Ala Ile Asp Thr His Thr Ala Arg Pro Pro Ser Met			
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Gln Val Thr Ile Glu Asp Val Gln Ala Gln Thr Gly Gly Thr Ala Gln			
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ttc gag gct atc att gag ggc gac cca cag ccc tcg gtg acc tgg tac			3230
Phe Glu Ala Ile Ile Glu Gly Asp Pro Gln Pro Ser Val Thr Trp Tyr			
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aag gac agc gtc cag ctg gtg gac acc cgg ctt agc cag cag caa			3278
Lys Asp Ser Val Gln Leu Val Asp Ser Thr Arg Leu Ser Gln Gln Gln			
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gaa ggc acc aca tac tcc ctg gtg ctg agg cat gtg gcc tcg aag gat			3326
Glu Gly Thr Thr Tyr Ser Leu Val Leu Arg His Val Ala Ser Lys Asp			

1070	1075	1080	1085	
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tgc aag gca gag ctg ctg gtg ctt ggg ggg gac aat gag ccg gac tca Cys Lys Ala Glu Leu Leu Val Leu Gly Gly Asp Asn Glu Pro Asp Ser 1105				3422
				1110
gag aag caa agc cac cgg agg aag ctg cac tcc ttc tat gag gtc aag Glu Lys Gln Ser His Arg Arg Lys Leu His Ser Phe Tyr Glu Val Lys 1120				3470
				1125
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				1140
				1145
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				1155
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				1165
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				1175
				1180
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				1205
				1210
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				1220
				1225
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				1240
				1245
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				1290
ccc gag atc atc cag cag aac cct gtg agc gaa gcc tcc gac att tgg Pro Glu Ile Ile Gln Gln Asn Pro Val Ser Glu Ala Ser Asp Ile Trp 1295				3998
				1300
				1305
gcc atg ggt gtc atc tcc tac ctc agc ctg acc tgc tca tcc cca ttt Ala Met Gly Val Ile Ser Tyr Leu Ser Leu Thr Cys Ser Ser Pro Phe 1310				4046
				1315
				1320
				1325

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gac ttc atc aag gct acg ctg cag aga gcc cct cag gcc cggt cct agt Asp Phe Ile Lys Ala Thr Leu Gln Arg Ala Pro Gln Ala Arg Pro Ser 1360	1365	1370	4190	
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cga ctg cct tca gcc ccc tcc ggg ggg gcc cct atc agg gac atg ggg Arg Leu Pro Ser Ala Pro Ser Gly Gly Ala Pro Ile Arg Asp Met Gly	1650	1655	1660	5054
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Pro Ser Leu Asp Ala Glu Gly Trp Thr Gln Glu Ala Glu Asp Leu Ser			
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gac tcc aca ccc acc ttg cag cgg cct cag gaa cag gcg acc atg cgc		5582	
Asp Ser Thr Pro Thr Leu Gln Arg Pro Gln Glu Gln Ala Thr Met Arg			
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aag ttc tcc ctg ggt ggt cgc ggg ggc tac gca ggc gtg gct ggc tat		5630	
Lys Phe Ser Leu Gly Gly Arg Gly Gly Tyr Ala Gly Val Ala Gly Tyr			
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ggc acc ttt gcc ttt ggt gga gat gca ggg ggc atg ctg ggg cag ggg		5678	
Gly Thr Phe Ala Phe Gly Gly Asp Ala Gly Gly Met Leu Gly Gln Gly			
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Pro Met Trp Ala Arg Ile Ala Trp Ala Val Ser Gln Ser Glu Glu Glu			
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gag cag gag gag gcc agg gct gag tcc cag tcg gag gag cag cag gag		5774	
Glu Gln Glu Glu Ala Arg Ala Glu Ser Gln Ser Glu Glu Gln Gln Glu			
1890	1895	1900	
gcc agg gct gag agc cca ctg ccc cag gtc agt gca agg cct gtg cct		5822	
Ala Arg Ala Glu Ser Pro Leu Pro Gln Val Ser Ala Arg Pro Val Pro			
1905	1910	1915	
gag gtc ggc agg gct ccc acc agg agc tct cca gag ccc acc cca tgg		5870	
Glu Val Gly Arg Ala Pro Thr Arg Ser Ser Pro Glu Pro Thr Pro Trp			
1920	1925	1930	
gag gac atc ggg cag gtc tcc ctg gtg cag atc cgg gac ctg tca ggt		5918	
Glu Asp Ile Gly Gln Val Ser Leu Val Gln Ile Arg Asp Leu Ser Gly			
1935	1940	1945	
gat gcg gag gcg gcc gac aca ata tcc ctg gac att tcc gag gtg gac		5966	
Asp Ala Glu Ala Ala Asp Thr Ile Ser Leu Asp Ile Ser Glu Val Asp			
1950	1955	1960	1965
ccc gcc tac ctc aac ctc tca gac ctg tac gat atc aag tac ctc cca		6014	
Pro Ala Tyr Leu Asn Leu Ser Asp Leu Tyr Asp Ile Lys Tyr Leu Pro			
1970	1975	1980	
ttc gag ttt atg atc ttc agg aaa gtc ccc aag tcc gct cag cca gag		6062	
Phe Glu Phe Met Ile Phe Arg Lys Val Pro Lys Ser Ala Gln Pro Glu			
1985	1990	1995	
ccg ccc tcc ccc atg gct gag gag ctg gcc gag ttc ccg gag ccc		6110	
Pro Pro Ser Pro Met Ala Glu Glu Glu Leu Ala Glu Phe Pro Glu Pro			
2000	2005	2010	
acg tgg ccc tgg cca ggt gaa ctg ggc ccc cac gca ggc ctg gag atc		6158	
Thr Trp Pro Trp Pro Gly Glu Leu Gly Pro His Ala Gly Leu Glu Ile			
2015	2020	2025	
aca gag gag tca gag gat gtg gac gcg ctg ctg gca gag gct gcc gtg		6206	
Thr Glu Glu Ser Glu Asp Val Asp Ala Leu Leu Ala Glu Ala Ala Val			
2030	2035	2040	2045
ggc agg aag cgc aag tgg tcc tcg ccg tca cgc agc ctc ttc cac ttc		6254	
Gly Arg Lys Arg Lys Trp Ser Ser Pro Ser Arg Ser Leu Phe His Phe			

2050	2055	2060																
cct	ggg	agg	cac	ctg	ccg	ctg	gat	gag	cct	gca	gag	ctg	ggg	ctg	cgt		6302	
Pro	Gly	Arg	His	Leu	Pro	Leu	Asp	Glu	Pro	Ala	Glu	Leu	Gly	Leu	Arg			
2065																2075		
gag	aga	gtg	aag	gcc	tcc	gtg	gag	cac	atc	tcc	cg	atc	ctg	aag	ggc		6350	
Glu	Arg	Val	Lys	Ala	Ser	Val	Glu	His	Ile	Ser	Arg	Ile	Leu	Lys	Gly			
2080																2090		
agg	ccg	gaa	ggt	ctg	gag	aag	gag	ggg	ccc	ccc	agg	aag	cca	ggc		6398		
Arg	Pro	Glu	Gly	Leu	Glu	Lys	Glu	Gly	Pro	Pro	Arg	Lys	Lys	Pro	Gly			
2095																2105		
ctt	gct	tcc	ttc	cg	ctc	tca	gg	ctg	aag	agc	tgg	gac	cga	gcg	ccg		6446	
Leu	Ala	Ser	Phe	Arg	Leu	Ser	Gly	Leu	Lys	Ser	Trp	Asp	Arg	Ala	Pro			
2110																2125		
aca	tcc	cta	agg	gag	ctc	tca	gat	gag	act	gtg	gtc	ctg	ggc	cag	tca		6494	
Thr	Phe	Leu	Arg	Glu	Leu	Ser	Asp	Glu	Thr	Val	Val	Leu	Gly	Gln	Ser			
2130																2140		
gtg	aca	ctg	gcc	tgc	cag	gtg	tca	gcc	cag	cca	gct	gcc	cag	gcc	acc		6542	
Val	Thr	Leu	Ala	Cys	Gln	Val	Ser	Ala	Gln	Pro	Ala	Ala	Gln	Ala	Thr			
2145																2155		
tgg	agc	aaa	gac	gga	gcc	ccc	ctg	gag	agc	agc	agc	cgt	gtc	ctc	atc		6590	
Trp	Ser	Lys	Asp	Gly	Ala	Pro	Leu	Glu	Ser	Ser	Ser	Arg	Val	Leu	Ile			
2160																2170		
tct	gcc	acc	ctc	aag	aac	ttc	cag	ctt	ctg	acc	atc	ctg	gtg	gtg	gtg		6638	
Ser	Ala	Thr	Leu	Lys	Asn	Phe	Gln	Leu	Leu	Thr	Ile	Leu	Val	Val	Val			
2175																2185		
gct	gag	gac	ctg	gg	gt	ta	cc	tgc	agc	gt	agc	aat	g	cg	ctg	gg		6686
Ala	Glu	Asp	Leu	Gly	Val	Tyr	Thr	Cys	Ser	Val	Ser	Asn	Ala	Leu	Gly			
2190																2205		
aca	gt	acc	acc	acg	gg	gtc	ctc	cg	aag	gca	gag	cg	cc	tca	tct		6734	
Thr	Val	Thr	Thr	Gly	Val	Leu	Arg	Lys	Ala	Glu	Arg	Pro	Ser	Ser				
2210																2220		
tcg	cca	tgc	ccg	gat	atc	gg	gg	gag	gt	ta	cc	g	gg	gt	ctg		6782	
Ser	Pro	Cys	Pro	Asp	Ile	Gly	Glu	Val	Tyr	Ala	Asp	Gly	Val	Leu	Leu			
2225																2235		
gtc	tgg	aag	ccc	gt	ga	tcc	ta	cc	gg	cct	gt	ac	ta	tt	gt	ca		6830
Val	Trp	Lys	Pro	Val	Glu	Ser	Tyr	Gly	Pro	Val	Thr	Tyr	Ile	Val	Gln			
2240																2250		
tgc	agc	cta	gaa	gg	gg	agc	tgg	acc	aca	ctg	gg	atc	ttt			6878		
Cys	Ser	Leu	Glu	Gly	Gly	Ser	Trp	Thr	Thr	Leu	Ala	Ser	Asp	Ile	Phe			
2255																2265		
gac	tgc	tgc	tac	ctg	acc	agc	aag	ctc	tcc	cg	gg	gt	gg	ac	ta	cc		6926
Asp	Cys	Cys	Tyr	Leu	Thr	Ser	Lys	Leu	Ser	Arg	Gly	Gly	Thr	Tyr	Thr			
2270																2280		
ttc	cgc	acg	gca	tgt	gtc	agc	aag	gca	gga	atg	gg	ccc	ta	agc	agc		6974	
Phe	Arg	Thr	Ala	Cys	Val	Ser	Lys	Ala	Gly	Met	Gly	Pro	Tyr	Ser	Ser			
2290																2295		
																2300		

ccc tcg gag caa gtc ctc ctg gga ggg ccc agc cac ctg gcc tct gag		7022	
Pro Ser Glu Gln Val Leu Leu Gly Gly Pro Ser His Leu Ala Ser Glu			
2305	2310	2315	
gag gag agc cag ggg cggtca gcc caa ccc ctg ccc agc aca aag acc		7070	
Glu Glu Ser Gln Gly Arg Ser Ala Gln Pro Leu Pro Ser Thr Lys Thr			
2320	2325	2330	
tcc gca ttc cag aca cag atc cag agg ggc cgc ttc agc gtg gtg cgg		7118	
Phe Ala Phe Gln Thr Gln Ile Gln Arg Gly Arg Phe Ser Val Val Arg			
2335	2340	2345	
caa tgc tgg gag aag gcc agc ggg cgg gcg ctg gcc gcc aag atc atc		7166	
Gln Cys Trp Glu Lys Ala Ser Gly Arg Ala Leu Ala Ala Lys Ile Ile			
2350	2355	2360	2365
ccc tac cac ccc aag gac aag aca gca gtg ctg cgc gaa tac gag gcc		7214	
Pro Tyr His Pro Lys Asp Lys Thr Ala Val Leu Arg Glu Tyr Glu Ala			
2370	2375	2380	
ctc aag ggc ctg cgc cac ccg cac ctg gcc cag ctg cac gca gcc tac		7262	
Leu Lys Gly Leu Arg His Pro His Leu Ala Gln Leu His Ala Ala Tyr			
2385	2390	2395	
ctc agc ccc cgg cac ctg gtg ctc atc ttg gag ctg tgc tct ggg ccc		7310	
Leu Ser Pro Arg His Leu Val Leu Ile Leu Glu Leu Cys Ser Gly Pro			
2400	2405	2410	
gag ctg ctc ccc tgc ctg gcc gag agg gcc tcc tac tca gaa tcc gag		7358	
Glu Leu Leu Pro Cys Leu Ala Glu Arg Ala Ser Tyr Ser Glu Ser Glu			
2415	2420	2425	
gtg aag gac tac ctg tgg cag atg ttg agt gcc acc cag tac ctg cac		7406	
Val Lys Asp Tyr Leu Trp Gln Met Leu Ser Ala Thr Gln Tyr Leu His			
2430	2435	2440	2445
aac cag cac atc ctg cac ctg gac ctg agg tcc gag aac atg atc atc		7454	
Asn Gln His Ile Leu His Leu Asp Leu Arg Ser Glu Asn Met Ile Ile			
2450	2455	2460	
acc gaa tac aac ctg ctc aag gtc gtg gac ctg ggc aat gca cag agc		7502	
Thr Glu Tyr Asn Leu Leu Lys Val Val Asp Leu Gly Asn Ala Gln Ser			
2465	2470	2475	
ctc agc cag gag aag gtg ctg ccc tca gac aag ttc aag gac tac cta		7550	
Leu Ser Gln Glu Lys Val Leu Pro Ser Asp Lys Phe Lys Asp Tyr Leu			
2480	2485	2490	
gag acc atg gct cca gag ctc ctg gag ggc cag ggg gct gtt cca cag		7598	
Glu Thr Met Ala Pro Glu Leu Leu Glu Gly Gln Gly Ala Val Pro Gln			
2495	2500	2505	
aca gac atc tgg gcc atc ggt gtg aca gcc ttc atc atg ctg agc gcc		7646	
Thr Asp Ile Trp Ala Ile Gly Val Thr Ala Phe Ile Met Leu Ser Ala			
2510	2515	2520	2525
gag tac ccg gtg agc agc gag ggt gca cgc gac ctg cag aga gga ctg		7694	
Glu Tyr Pro Val Ser Ser Glu Gly Ala Arg Asp Leu Gln Arg Gly Leu			
2530	2535	2540	

cgc aag ggg ctg gtc cg ^c ctg agc cgc tgc tac g ^c ggg ctg tcc ggg Arg Lys Gly Leu Val Arg Leu Ser Arg Cys Tyr Ala Gly Leu Ser Gly 2545 2550 2555	7742
ggc gcc gtg gcc ttc ctg cgc agc act ctg tgc gcc cag ccc tgg ggc Gly Ala Val Ala Phe Leu Arg Ser Thr Leu Cys Ala Gln Pro Trp Gly 2560 2565 2570	7790
cg ^c ccc tgc g ^c tcc agc tgc ctg cag tgc ccg tgg cta aca gag gag Arg Pro Cys Ala Ser Ser Cys Leu Gln Cys Pro Trp Leu Thr Glu Glu 2575 2580 2585	7838
ggc ccg gcc tgt tcg cg ^c ccc g ^c gtg acc ttc cct acc g ^c cg ^c Gly Pro Ala Cys Ser Arg Pro Ala Pro Val Thr Phe Pro Thr Ala Arg 2590 2595 2600 2605	7886
ctg cgc gtc ttc gtg cgc aat cg ^c gag aag aga cg ^c g ^c ctg ctg tac Leu Arg Val Phe Val Arg Asn Arg Glu Lys Arg Arg Ala Leu Leu Tyr 2610 2615 2620	7934
aag agg cac aac ctg gcc cag gtg cg ^c tga gggtcgcccc ggccacaccc Lys Arg His Asn Leu Ala Gln Val Arg * 2625 2630	7984
ttggtctccc cgctgggggt cgctgcagac ggc ^c caataa aaacgcccag ccggcgaga 8044 aaaaaaaaaaaa aaaaaaaaaaa aaaaaaaaaaaag gcggccgcta aaaaagtcta 8104 ga	8106
<210> 2 <211> 2630 <212> PRT <213> Homo sapiens	
<400> 2 Met Gly Ala Ala Tyr Ser Ser Ala Arg Leu Leu Val Arg Gly Pro Asp 1 5 10 15 Glu Pro Glu Glu Lys Pro Ala Ser Asp Val His Glu Gln Leu Val Pro 20 25 30 Pro Arg Met Leu Glu Arg Phe Thr Pro Lys Lys Val Lys Lys Gly Ser 35 40 45 Ser Ile Thr Phe Ser Val Lys Val Glu Gly Arg Pro Val Pro Thr Val 50 55 60 His Trp Leu Arg Glu Glu Ala Glu Arg Gly Val Leu Trp Ile Gly Pro 65 70 75 80 Asp Thr Pro Gly Tyr Thr Val Ala Ser Ser Ala Gln Gln His Ser Leu 85 90 95 Val Leu Leu Asp Val Gly Arg Gln His Gln Gly Thr Tyr Thr Cys Ile 100 105 110 Ala Ser Asn Ala Ala Gly Gln Ala Leu Cys Ser Ala Ser Leu His Val 115 120 125 Ser Gly Leu Pro Lys Val Glu Glu Gln Glu Lys Val Lys Glu Ala Leu 130 135 140 Ile Ser Thr Phe Leu Gln Gly Thr Thr Gln Ala Ile Ser Ala Gln Gly 145 150 155 160 Leu Glu Thr Ala Ser Phe Ala Asp Leu Gly Gly Gln Arg Lys Glu Glu 165 170 175 Pro Leu Ala Ala Lys Glu Ala Leu Gly His Leu Ser Leu Ala Glu Val 180 185 190 Gly Thr Glu Glu Phe Leu Gln Lys Leu Thr Ser Gln Ile Thr Glu Met 195 200 205 Val Ser Ala Lys Ile Thr Gln Ala Lys Leu Gln Val Pro Gly Gly Asp	

210	215	220													
Ser	Asp	Glu	Asp	Ser	Lys	Thr	Pro	Ser	Ala	Ser	Pro	Arg	His	Gly	Arg
225		230									235				240
Ser	Arg	Pro	Ser	Ser	Ser	Ile	Gln	Glu	Ser	Ser	Ser	Glu	Ser	Glu	Asp
						245			250						255
Gly	Asp	Ala	Arg	Gly	Glu	Ile	Phe	Asp	Ile	Tyr	Val	Val	Thr	Ala	Asp
						260			265						270
Tyr	Leu	Pro	Leu	Gly	Ala	Glu	Gln	Asp	Ala	Ile	Thr	Leu	Arg	Glu	Gly
						275			280						285
Gln	Tyr	Val	Glu	Val	Leu	Asp	Ala	Ala	His	Pro	Leu	Arg	Trp	Leu	Val
						290			295						295
Arg	Thr	Lys	Pro	Thr	Lys	Ser	Ser	Pro	Ser	Arg	Gln	Gly	Trp	Val	Ser
						305			310			315			320
Pro	Ala	Tyr	Leu	Asp	Arg	Arg	Leu	Lys	Leu	Ser	Pro	Glu	Trp	Gly	Ala
						325			330						335
Ala	Glu	Ala	Pro	Glu	Phe	Pro	Gly	Glu	Ala	Val	Ser	Glu	Asp	Glu	Tyr
						340			345						350
Lys	Ala	Arg	Leu	Ser	Ser	Val	Ile	Gln	Glu	Leu	Leu	Ser	Ser	Glu	Gln
						355			360						365
Ala	Phe	Val	Glu	Glu	Leu	Gln	Phe	Leu	Gln	Ser	His	His	Leu	Gln	His
						370			375						380
Leu	Glu	Arg	Cys	Pro	His	Val	Pro	Ile	Ala	Val	Ala	Gly	Gln	Lys	Ala
						385			390			395			400
Val	Ile	Phe	Arg	Asn	Val	Arg	Asp	Ile	Gly	Arg	Phe	His	Ser	Ser	Phe
						405			410						415
Leu	Gln	Glu	Leu	Gln	Gln	Cys	Asp	Thr	Asp	Asp	Asp	Val	Ala	Met	Cys
						420			425						430
Phe	Ile	Lys	Asn	Gln	Ala	Ala	Phe	Glu	Gln	Tyr	Leu	Glu	Phe	Leu	Val
						435			440			445			
Gly	Arg	Val	Gln	Ala	Glu	Ser	Val	Val	Val	Ser	Thr	Ala	Ile	Gln	Glu
						450			455			460			
Phe	Tyr	Lys	Lys	Tyr	Ala	Glu	Glu	Ala	Leu	Leu	Ala	Gly	Asp	Pro	Ser
						465			470			475			480
Gln	Pro	Pro	Pro	Pro	Leu	Gln	His	Tyr	Leu	Glu	Gln	Pro	Val	Glu	
						485			490			495			
Arg	Val	Gln	Arg	Tyr	Gln	Ala	Leu	Leu	Lys	Glu	Leu	Ile	Arg	Asn	Lys
						500			505			510			
Ala	Arg	Asn	Arg	Gln	Asn	Cys	Ala	Leu	Leu	Glu	Gln	Ala	Tyr	Ala	Val
						515			520			525			
Val	Ser	Ala	Leu	Pro	Gln	Arg	Ala	Glu	Asn	Lys	Leu	His	Val	Ser	Leu
						530			535			540			
Met	Glu	Asn	Tyr	Pro	Gly	Thr	Leu	Glu	Ala	Leu	Gly	Glu	Pro	Ile	Arg
						545			550			555			560
Gln	Gly	His	Phe	Ile	Val	Trp	Glu	Gly	Ala	Pro	Gly	Ala	Arg	Met	Pro
						565			570			575			
Trp	Lys	Gly	His	Asn	Arg	His	Val	Phe	Leu	Phe	Arg	Asn	His	Leu	Val
						580			585			590			
Ile	Cys	Lys	Pro	Arg	Arg	Asp	Ser	Arg	Thr	Asp	Thr	Val	Ser	Tyr	Val
						595			600			605			
Phe	Arg	Asn	Met	Met	Lys	Leu	Ser	Ser	Ile	Asp	Leu	Asn	Asp	Gln	Val
						610			615			620			
Glu	Gly	Asp	Asp	Arg	Ala	Phe	Glu	Val	Trp	Gln	Glu	Arg	Glu	Asp	Ser
						625			630			635			640
Val	Arg	Lys	Tyr	Leu	Leu	Gln	Ala	Arg	Thr	Ala	Ile	Ile	Lys	Ser	Ser
						645			650			655			
Trp	Val	Lys	Glu	Ile	Cys	Gly	Ile	Gln	Gln	Arg	Leu	Ala	Leu	Pro	Val
						660			665			670			
Trp	Arg	Pro	Pro	Asp	Phe	Glu	Glu	Leu	Ala	Asp	Cys	Thr	Ala	Glu	
						675			680			685			
Leu	Gly	Glu	Thr	Val	Lys	Leu	Ala	Cys	Arg	Val	Thr	Gly	Thr	Pro	Lys
						690			695			700			

Pro Val Ile Ser Trp Tyr Lys Asp Gly Lys Ala Val Gln Val Asp Pro
 705 710 715 720
 His His Ile Leu Ile Glu Asp Pro Asp Gly Ser Cys Ala Leu Ile Leu
 725 730 735
 Asp Ser Leu Thr Gly Val Asp Ser Gly Gln Tyr Met Cys Phe Ala Ala
 740 745 750
 Ser Ala Ala Gly Asn Cys Ser Thr Leu Gly Lys Ile Leu Val Gln Val
 755 760 765
 Pro Pro Arg Phe Val Asn Lys Val Arg Ala Ser Pro Phe Val Glu Gly
 770 775 780
 Glu Asp Ala Gln Phe Thr Cys Thr Ile Glu Gly Ala Pro Tyr Pro Gln
 785 790 795 800
 Ile Arg Trp Tyr Lys Asp Gly Ala Leu Leu Thr Thr Gly Asn Lys Phe
 805 810 815
 Gln Thr Leu Ser Glu Pro Arg Ser Gly Leu Leu Val Leu Val Ile Arg
 820 825 830
 Ala Ala Ser Lys Glu Asp Leu Gly Leu Tyr Glu Cys Glu Leu Val Asn
 835 840 845
 Arg Leu Gly Ser Ala Arg Ala Ser Ala Glu Leu Arg Ile Gln Ser Pro
 850 855 860
 Met Leu Gln Ala Gln Glu Gln Cys His Arg Glu Gln Leu Val Ala Ala
 865 870 875 880
 Val Glu Asp Thr Thr Leu Glu Arg Ala Asp Gln Glu Val Thr Ser Val
 885 890 895
 Leu Lys Arg Leu Leu Gly Pro Lys Ala Pro Gly Pro Ser Thr Gly Asp
 900 905 910
 Leu Thr Gly Pro Gly Pro Cys Pro Arg Gly Ala Pro Ala Leu Gln Glu
 915 920 925
 Thr Gly Ser Gln Pro Pro Val Thr Gly Thr Ser Glu Ala Pro Ala Val
 930 935 940
 Pro Pro Arg Val Pro Gln Pro Leu Leu His Glu Gly Pro Glu Gln Glu
 945 950 955 960
 Pro Glu Ala Ile Ala Arg Ala Gln Glu Trp Thr Val Pro Ile Arg Met
 965 970 975
 Glu Gly Ala Ala Trp Pro Gly Ala Gly Thr Gly Glu Leu Leu Trp Asp
 980 985 990
 Val His Ser His Val Val Arg Glu Thr Thr Gln Arg Thr Tyr Thr Tyr
 995 1000 1005
 Gln Ala Ile Asp Thr His Thr Ala Arg Pro Pro Ser Met Gln Val Thr
 1010 1015 1020
 Ile Glu Asp Val Gln Ala Gln Thr Gly Gly Thr Ala Gln Phe Glu Ala
 1025 1030 1035 1040
 Ile Ile Glu Gly Asp Pro Gln Pro Ser Val Thr Trp Tyr Lys Asp Ser
 1045 1050 1055
 Val Gln Leu Val Asp Ser Thr Arg Leu Ser Gln Gln Glu Gly Thr
 1060 1065 1070
 Thr Tyr Ser Leu Val Leu Arg His Val Ala Ser Lys Asp Ala Gly Val
 1075 1080 1085
 Tyr Thr Cys Leu Ala Gln Asn Thr Gly Gly Gln Val Leu Cys Lys Ala
 1090 1095 1100
 Glu Leu Leu Val Leu Gly Gly Asp Asn Glu Pro Asp Ser Glu Lys Gln
 1105 1110 1115 1120
 Ser His Arg Arg Lys Leu His Ser Phe Tyr Glu Val Lys Glu Glu Ile
 1125 1130 1135
 Gly Arg Gly Val Phe Gly Phe Val Lys Arg Val Gln His Lys Gly Asn
 1140 1145 1150
 Lys Ile Leu Cys Ala Ala Lys Phe Ile Pro Leu Arg Ser Arg Thr Arg
 1155 1160 1165
 Ala Gln Ala Tyr Arg Glu Arg Asp Ile Leu Ala Ala Leu Ser His Pro
 1170 1175 1180
 Leu Val Thr Gly Leu Leu Asp Gln Phe Glu Thr Arg Lys Thr Leu Ile

1185	1190	1195	1200
Leu Ile Leu Glu Leu Cys Ser Ser Glu Glu Leu Leu Asp Arg Leu Tyr			
1205	1210	1215	
Arg Lys Gly Val Val Thr Glu Ala Glu Val Lys Val Tyr Ile Gln Gln			
1220	1225	1230	
Leu Val Glu Gly Leu His Tyr Leu His Ser His Gly Val Leu His Leu			
1235	1240	1245	
Asp Ile Lys Pro Ser Asn Ile Leu Met Val His Pro Ala Arg Glu Asp			
1250	1255	1260	
Ile Lys Ile Cys Asp Phe Gly Phe Ala Gln Asn Ile Thr Pro Ala Glu			
1265	1270	1275	1280
Leu Gln Phe Ser Gln Tyr Gly Ser Pro Glu Phe Val Ser Pro Glu Ile			
1285	1290	1295	
Ile Gln Gln Asn Pro Val Ser Glu Ala Ser Asp Ile Trp Ala Met Gly			
1300	1305	1310	
Val Ile Ser Tyr Leu Ser Leu Thr Cys Ser Ser Pro Phe Ala Gly Glu			
1315	1320	1325	
Ser Asp Arg Ala Thr Leu Leu Asn Val Leu Glu Gly Arg Val Ser Trp			
1330	1335	1340	
Ser Ser Pro Met Ala Ala His Leu Ser Glu Asp Ala Lys Asp Phe Ile			
1345	1350	1355	1360
Lys Ala Thr Leu Gln Arg Ala Pro Gln Ala Arg Pro Ser Ala Ala Gln			
1365	1370	1375	
Cys Leu Ser His Pro Trp Phe Leu Lys Ser Met Pro Ala Glu Glu Ala			
1380	1385	1390	
His Phe Ile Asn Thr Lys Gln Leu Lys Phe Leu Leu Ala Arg Ser Arg			
1395	1400	1405	
Trp Gln Arg Ser Leu Met Ser Tyr Lys Ser Ile Leu Val Met Arg Ser			
1410	1415	1420	
Ile Pro Glu Leu Leu Arg Gly Pro Pro Asp Ser Pro Ser Leu Gly Val			
1425	1430	1435	1440
Ala Arg His Leu Cys Arg Asp Thr Gly Gly Ser Ser Ser Ser Ser			
1445	1450	1455	
Ser Ser Asp Asn Glu Leu Ala Pro Phe Ala Arg Ala Lys Ser Leu Pro			
1460	1465	1470	
Pro Ser Pro Val Thr His Ser Pro Leu Leu His Pro Arg Gly Phe Leu			
1475	1480	1485	
Arg Pro Ser Ala Ser Leu Pro Glu Glu Ala Glu Ala Ser Glu Arg Ser			
1490	1495	1500	
Thr Glu Ala Pro Ala Pro Pro Ala Ser Pro Glu Gly Ala Gly Pro Pro			
1505	1510	1515	1520
Ala Ala Gln Gly Cys Val Pro Arg His Ser Val Ile Arg Ser Leu Phe			
1525	1530	1535	
Tyr His Gln Ala Gly Glu Ser Pro Glu His Gly Ala Leu Ala Pro Gly			
1540	1545	1550	
Ser Arg Arg His Pro Ala Arg Arg His Leu Leu Lys Gly Gly Tyr			
1555	1560	1565	
Ile Ala Gly Ala Leu Pro Gly Leu Arg Glu Pro Leu Met Glu His Arg			
1570	1575	1580	
Val Leu Glu Glu Ala Ala Arg Glu Glu Gln Ala Thr Leu Leu Ala			
1585	1590	1595	1600
Lys Ala Pro Ser Phe Glu Thr Ala Leu Arg Leu Pro Ala Ser Gly Thr			
1605	1610	1615	
His Leu Ala Pro Gly His Ser His Ser Leu Glu His Asp Ser Pro Ser			
1620	1625	1630	
Thr Pro Arg Pro Ser Ser Glu Ala Cys Gly Glu Ala Gln Arg Leu Pro			
1635	1640	1645	
Ser Ala Pro Ser Gly Gly Ala Pro Ile Arg Asp Met Gly His Pro Gln			
1650	1655	1660	
Gly Ser Lys Gln Leu Pro Ser Thr Gly Gly His Pro Gly Thr Ala Gln			
1665	1670	1675	1680

Pro Glu Arg Pro Ser Pro Asp Ser Pro Trp Gly Gln Pro Ala Pro Phe
 1685 1690 1695
 Cys His Pro Lys Gln Gly Ser Ala Pro Gln Glu Gly Cys Ser Pro His
 1700 1705 1710
 Pro Ala Val Ala Pro Cys Pro Pro Gly Ser Phe Pro Pro Gly Ser Cys
 1715 1720 1725
 Lys Glu Ala Pro Leu Val Pro Ser Ser Pro Phe Leu Gly Gln Pro Gln
 1730 1735 1740
 Ala Pro Pro Ala Pro Ala Lys Ala Ser Pro Pro Leu Asp Ser Lys Met
 1745 1750 1755 1760
 Gly Pro Gly Asp Ile Ser Leu Pro Gly Arg Pro Lys Pro Gly Pro Cys
 1765 1770 1775
 Ser Ser Pro Gly Ser Ala Ser Gln Ala Ser Ser Ser Gln Val Ser Ser
 1780 1785 1790
 Leu Arg Val Gly Ser Ser Gln Val Gly Thr Glu Pro Gly Pro Ser Leu
 1795 1800 1805
 Asp Ala Glu Gly Trp Thr Gln Glu Ala Glu Asp Leu Ser Asp Ser Thr
 1810 1815 1820
 Pro Thr Leu Gln Arg Pro Gln Glu Gln Ala Thr Met Arg Lys Phe Ser
 1825 1830 1835 1840
 Leu Gly Gly Arg Gly Gly Tyr Ala Gly Val Ala Gly Tyr Gly Thr Phe
 1845 1850 1855
 Ala Phe Gly Gly Asp Ala Gly Gly Met Leu Gly Gln Gly Pro Met Trp
 1860 1865 1870
 Ala Arg Ile Ala Trp Ala Val Ser Gln Ser Glu Glu Glu Gln Glu
 1875 1880 1885
 Glu Ala Arg Ala Glu Ser Gln Ser Glu Glu Gln Gln Glu Ala Arg Ala
 1890 1895 1900
 Glu Ser Pro Leu Pro Gln Val Ser Ala Arg Pro Val Pro Glu Val Gly
 1905 1910 1915 1920
 Arg Ala Pro Thr Arg Ser Ser Pro Glu Pro Thr Pro Trp Glu Asp Ile
 1925 1930 1935
 Gly Gln Val Ser Leu Val Gln Ile Arg Asp Leu Ser Gly Asp Ala Glu
 1940 1945 1950
 Ala Ala Asp Thr Ile Ser Leu Asp Ile Ser Glu Val Asp Pro Ala Tyr
 1955 1960 1965
 Leu Asn Leu Ser Asp Leu Tyr Asp Ile Lys Tyr Leu Pro Phe Glu Phe
 1970 1975 1980
 Met Ile Phe Arg Lys Val Pro Lys Ser Ala Gln Pro Glu Pro Pro Ser
 1985 1990 1995 2000
 Pro Met Ala Glu Glu Leu Ala Glu Phe Pro Glu Pro Thr Trp Pro
 2005 2010 2015
 Trp Pro Gly Glu Leu Gly Pro His Ala Gly Leu Glu Ile Thr Glu Glu
 2020 2025 2030
 Ser Glu Asp Val Asp Ala Leu Leu Ala Glu Ala Ala Val Gly Arg Lys
 2035 2040 2045
 Arg Lys Trp Ser Ser Pro Ser Arg Ser Leu Phe His Phe Pro Gly Arg
 2050 2055 2060
 His Leu Pro Leu Asp Glu Pro Ala Glu Leu Gly Leu Arg Glu Arg Val
 2065 2070 2075 2080
 Lys Ala Ser Val Glu His Ile Ser Arg Ile Leu Lys Gly Arg Pro Glu
 2085 2090 2095
 Gly Leu Glu Lys Glu Gly Pro Pro Arg Lys Lys Pro Gly Leu Ala Ser
 2100 2105 2110
 Phe Arg Leu Ser Gly Leu Lys Ser Trp Asp Arg Ala Pro Thr Phe Leu
 2115 2120 2125
 Arg Glu Leu Ser Asp Glu Thr Val Val Leu Gly Gln Ser Val Thr Leu
 2130 2135 2140
 Ala Cys Gln Val Ser Ala Gln Pro Ala Ala Gln Ala Thr Trp Ser Lys
 2145 2150 2155 2160
 Asp Gly Ala Pro Leu Glu Ser Ser Arg Val Leu Ile Ser Ala Thr

	2165	2170	2175
Leu Lys Asn Phe Gln Leu Leu Thr Ile Leu Val Val Val Ala Glu Asp			
2180	2185	2190	
Leu Gly Val Tyr Thr Cys Ser Val Ser Asn Ala Leu Gly Thr Val Thr			
2195	2200	2205	
Thr Thr Gly Val Leu Arg Lys Ala Glu Arg Pro Ser Ser Ser Pro Cys			
2210	2215	2220	
Pro Asp Ile Gly Glu Val Tyr Ala Asp Gly Val Leu Leu Val Trp Lys			
2225	2230	2235	2240
Pro Val Glu Ser Tyr Gly Pro Val Thr Tyr Ile Val Gln Cys Ser Leu			
2245	2250	2255	
Glu Gly Gly Ser Trp Thr Thr Leu Ala Ser Asp Ile Phe Asp Cys Cys			
2260	2265	2270	
Tyr Leu Thr Ser Lys Leu Ser Arg Gly Gly Thr Tyr Thr Phe Arg Thr			
2275	2280	2285	
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Ile Arg Glu Val Pro Ala Ser Leu His Gly Ala Gln Leu Lys Phe Val			
670	675	680	685
gcc aac ggc att gag agc agc atc cgg atg gag gtc cgg gcg gcc cca			2174
Ala Asn Gly Ile Glu Ser Ser Ile Arg Met Glu Val Arg Ala Ala Pro			
690	695	700	
ggg ctg act gcc aac aag cca gcc gca gct gcc cgg gag gtg ctg			2222
Gly Leu Thr Ala Asn Lys Pro Pro Ala Ala Ala Arg Glu Val Leu			
705	710	715	
gct cgg ctg cac gag gag gcg cag ctg ctg gct gag ctg tca gat cag			2270
Ala Arg Leu His Glu Glu Ala Gln Leu Leu Ala Glu Leu Ser Asp Gln			
720	725	730	
gct gcg gct gtg acg tgg ctg aag gat ggt cgc aca ctg tcc cca ggc			2318
Ala Ala Ala Val Thr Trp Leu Lys Asp Gly Arg Thr Leu Ser Pro Gly			
735	740	745	
ccc aag tat gag gtg cag gca tcg gcc ggg cgg cgg gtg ctc ctt gtg			2366
Pro Lys Tyr Glu Val Gln Ala Ser Ala Gly Arg Arg Val Leu Leu Val			
750	755	760	765
cga gat gtg gcc cgg gac gat gca ggc ctc tac gag tgc gtc agc cgc			2414
Arg Asp Val Ala Arg Asp Asp Ala Gly Leu Tyr Glu Cys Val Ser Arg			
770	775	780	
ggg ggc cgc atc gcc tac cag ctc tcc gtg caa ggc ctc gcg cgc ttt			2462
Gly Gly Arg Ile Ala Tyr Gln Leu Ser Val Gln Gly Leu Ala Arg Phe			
785	790	795	
ctg cac aag gac atg gcg ggc agc tgt gtg gat gcc gtg gct ggg ggc			2510
Leu His Lys Asp Met Ala Gly Ser Cys Val Asp Ala Val Ala Gly Gly			
800	805	810	
ccg gcg cag ttt gag tgt gag acc tcc gaa gcc cac gtc cac gtg cac			2558
Pro Ala Gln Phe Glu Cys Glu Thr Ser Glu Ala His Val His Val His			
815	820	825	
tgg tac aag gat ggc atg gag ctg ggc cac tcc ggt gag cgc ttc ttg			2606
Trp Tyr Lys Asp Gly Met Glu Leu Gly His Ser Gly Glu Arg Phe Leu			

830	835	840	845	
cag gag gat gtg ggg acg cgg cac cgg ctg gtg gca gcc aca gtc acc Gln Glu Asp Val Gly Thr Arg His Arg Leu Val Ala Ala Thr Val Thr 850		855	860	2654
agg cag gat gaa ggc acc tac tcc tgc cgc gtg ggc gag gac tct gtg Arg Gln Asp Glu Gly Thr Tyr Ser Cys Arg Val Gly Glu Asp Ser Val 865	870	875		2702
gac ttc cgg ctc cgc gtc tct gag ccc aag gtg gtg ttt gct aag gag Asp Phe Arg Leu Arg Val Ser Glu Pro Lys Val Val Phe Ala Lys Glu 880	885	890		2750
cag ctg gca cgc agg aag ctg cag gca gag gca gga gcc agt gcc aca Gln Leu Ala Arg Arg Lys Leu Gln Ala Glu Ala Gly Ala Ser Ala Thr 895	900	905		2798
ctg agc tgc gag gtg gcc cag acg gag gtg acg tgg tac aag Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys 910	915	920	925	2846
gat ggg aag aag ctg agc tcc acg tcg aaa gtg tgc atg gag gcc aca Asp Gly Lys Lys Leu Ser Ser Ser Lys Val Cys Met Glu Ala Thr 930	935	940		2894
ggc tgc acg cgc agg ctg gtt gtg cag cag gca ggc cag gcg gat gcc Gly Cys Thr Arg Arg Leu Val Val Gln Gln Ala Gly Gln Ala Asp Ala 945	950	955		2942
ggg gag tat agc tgc gag gct ggg ggc cag cgg ctc tcc ttc cat ctg Gly Glu Tyr Ser Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe His Leu 960	965	970		2990
gat gtc aaa gag ccc aag gtg gtg ttt gcc aag gac cag gtg gca cac Asp Val Lys Glu Pro Lys Val Val Phe Ala Lys Asp Gln Val Ala His 975	980	985		3038
agt gag gtg cag gct gag gca ggg gcc aat gcc acg ctg agc tgc gag Ser Glu Val Gln Ala Glu Ala Gly Ala Asn Ala Thr Leu Ser Cys Glu 990	995	1000	1005	3086
gtg gcc cag gcc cag gcg gag gtg atg tgg tac aaa gat ggg aag aag Val Ala Gln Ala Gln Ala Glu Val Met Trp Tyr Lys Asp Gly Lys Lys 1010	1015	1020		3134
ctg agc tcc agc ttg aaa gtg cat gta gag gcc aaa ggc tgc aga cgg Leu Ser Ser Leu Lys Val His Val Glu Ala Lys Gly Cys Arg Arg 1025	1030	1035		3182
agg ctg gtg gtg cag cag gca ggc aag acg gat gcc ggg gac tac agc Arg Leu Val Val Gln Gln Ala Gly Lys Thr Asp Ala Gly Asp Tyr Ser 1040	1045	1050		3230
tgc gag gcc agg ggc cag agg gtc tcc ttc cgc ctg cac atc aca gag Cys Glu Ala Arg Gly Gln Arg Val Ser Phe Arg Leu His Ile Thr Glu 1055	1060	1065		3278
ccc aag atg atg ttt gca aag gag cag tca gtg cat aat gag gtg cag Pro Lys Met Met Phe Ala Lys Glu Gln Ser Val His Asn Glu Val Gln 1070	1075	1080	1085	3326

gct gag gcg ggg gcc agt gcc atg ctg agc tgt gag gtg gcc cag gcc Ala Glu Ala Gly Ala Ser Ala Met Leu Ser Cys Glu Val Ala Gln Ala 1090 1095 1100	3374
cag acg gag gtg acg tgg tac aag gat ggg aag aag ctg agc tcc agc Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys Lys Leu Ser Ser Ser 1105 1110 1115	3422
tca aaa gtg ggc atg gag gtc aaa ggg tgc aca cgg agg ctg gtg ctg Ser Lys Val Gly Met Glu Val Lys Gly Cys Thr Arg Arg Leu Val Leu 1120 1125 1130	3470
cca cag gcg ggc aaa gca gat gct ggg gag tac agc tgt gag gct ggg Pro Gln Ala Gly Lys Ala Asp Ala Gly Glu Tyr Ser Cys Glu Ala Gly 1135 1140 1145	3518
ggc cag aga gtc tcc ttc cac ctg cac atc aca gag ccc aag ggg gtg Gly Gln Arg Val Ser Phe His Leu His Ile Thr Glu Pro Lys Gly Val 1150 1155 1160 1165	3566
ttt gcg aag gag cag tca gtg cat aat gag gtg cag gct gag gcg ggg Phe Ala Lys Glu Gln Ser Val His Asn Glu Val Gln Ala Glu Ala Gly 1170 1175 1180	3614
acc act gcc atg ctg agc tgt gag gtg gcc cag ccc cag acg gag gtg Thr Thr Ala Met Leu Ser Cys Glu Val Ala Gln Pro Gln Thr Glu Val 1185 1190 1195	3662
acg tgg tac aag gac ggg aag aag ctg agc tcc agc tca aaa gta cgc Thr Trp Tyr Lys Asp Gly Lys Lys Leu Ser Ser Ser Lys Val Arg 1200 1205 1210	3710
atg gag gtc aag ggc tgc aca cga agg ctg gta gtg cag cag gtg ggc Met Glu Val Lys Gly Cys Thr Arg Arg Leu Val Val Gln Gln Val Gly 1215 1220 1225	3758
aaa gca gat gct ggg gag tac agc tgc gag gct ggg ggc cag aga gtc Lys Ala Asp Ala Gly Glu Tyr Ser Cys Glu Ala Gly Gly Gln Arg Val 1230 1235 1240 1245	3806
tcc ttt caa ctg cac atc aca gag ccc aag gca gtg ttt gcc aag gag Ser Phe Gln Leu His Ile Thr Glu Pro Lys Ala Val Phe Ala Lys Glu 1250 1255 1260	3854
cag ttg gtg cat aat gag gtg cgg act gag gca ggg gcc agt gcc aca Gln Leu Val His Asn Glu Val Arg Thr Glu Ala Gly Ala Ser Ala Thr 1265 1270 1275	3902
ctg agc tgt gag gtg gcc cag gcc cag aca gag gtg acg tgg tac aag Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys 1280 1285 1290	3950
gat ggg aag aag ctg agc tcc agt tcg aaa gtg cgc ata gag gct gcg Asp Gly Lys Lys Leu Ser Ser Ser Lys Val Arg Ile Glu Ala Ala 1295 1300 1305	3998
ggc tgc atg cgg cag ctg gtg cag cag gca ggc cag gca gat gct Gly Cys Met Arg Gln Leu Val Val Gln Gln Ala Gly Gln Ala Asp Ala 1310 1315 1320 1325	4046

ggg gag tac acc tgt gag gct ggg ggc cag cgg ctc tcc ttc cac ctg Gly Glu Tyr Thr Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe His Leu 1330 1335 1340	4094
gat gtt tca gag ccc aag gcg gtg ttt gca aag gag cag ctg gca cac Asp Val Ser Glu Pro Lys Ala Val Phe Ala Lys Glu Gln Leu Ala His 1345 1350 1355	4142
agg aag gtg cag gcc gag gcg ggg gcc att gcc acg ctg agc tgc gag Arg Lys Val Gln Ala Glu Ala Gly Ala Ile Ala Thr Leu Ser Cys Glu 1360 1365 1370	4190
gtg gcc cag gcc cag aca gag gtg acg tgg tac aag gac ggg aag aag Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys Lys 1375 1380 1385	4238
ctg agc tcc agc tcg aaa gtt cga atg gag gct gtg ggc tgc aca cgg Leu Ser Ser Ser Lys Val Arg Met Glu Ala Val Gly Cys Thr Arg 1390 1395 1400 1405	4286
agg ctg gtg cag cag gca tgc cag gcg gac acc ggg gag tat agc Arg Leu Val Val Gln Gln Ala Cys Gln Ala Asp Thr Gly Glu Tyr Ser 1410 1415 1420	4334
tgc gag gcc ggg ggc cag cgg ctc tcc ttc agc ctg gac gtg gca gag Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe Ser Leu Asp Val Ala Glu 1425 1430 1435	4382
ccc aag gtg gtg ttt gcc aag gag cag cca gtg cac agg gag gtg cag Pro Lys Val Val Phe Ala Lys Glu Gln Pro Val His Arg Glu Val Gln 1440 1445 1450	4430
gcc cag gcg ggg gcc agc acc aca ctc agc tgc gag gtg gct cag gcc Ala Gln Ala Gly Ala Ser Thr Thr Leu Ser Cys Glu Val Ala Gln Ala 1455 1460 1465	4478
cag acg gag gtg atg tgg tac aag gac ggg aag aag ctg agc ttc agc Gln Thr Glu Val Met Trp Tyr Lys Asp Gly Lys Lys Leu Ser Phe Ser 1470 1475 1480 1485	4526
tcg aaa gtg cgc atg gag gct gtg ggc tgc aca cgg agg ctg gtg gtg Ser Lys Val Arg Met Glu Ala Val Gly Cys Thr Arg Arg Leu Val Val 1490 1495 1500	4574
cag cag gcg ggc cag gcg gac gcc ggg gag tac agc tgc gag gcg ggg Gln Gln Ala Gly Gln Ala Asp Ala Gly Glu Tyr Ser Cys Glu Ala Gly 1505 1510 1515	4622
agc cag cgg ctc tcc ttc cac ctg cac gtg gca gag ccc aag gcg gtg Ser Gln Arg Leu Ser Phe His Leu His Val Ala Glu Pro Lys Ala Val 1520 1525 1530	4670
ttt gcc aag gag cag cca gcg agc agg gag gtg cag gct gag gcg ggg Phe Ala Lys Glu Gln Pro Ala Ser Arg Glu Val Gln Ala Glu Ala Gly 1535 1540 1545	4718
acc agt gcc acg ctg agc tgc gag gtg gcc cag gcc cag aca gag gtg Thr Ser Ala Thr Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu Val 1550 1555 1560 1565	4766
acg tgg tac aag gac ggg aag aaa ctg agc tcc agc tcg aaa gtg cga	4814

Thr Trp Tyr Lys Asp Gly Lys Lys Leu Ser Ser Ser Ser Lys Val Arg			
1570	1575	1580	
atg gag gcc gtg ggc tgc aca cgg agg ctg gtg cag gag gca ggc		4862	
Met Glu Ala Val Gly Cys Thr Arg Arg Leu Val Val Gln Glu Ala Gly			
1585	1590	1595	
cag gcg gac gcc ggg gag tac agc tgc aag gcc ggg gat cag cgg ctg		4910	
Gln Ala Asp Ala Gly Glu Tyr Ser Cys Lys Ala Gly Asp Gln Arg Leu			
1600	1605	1610	
tcc ttc cac ctg cac gtg gca gag ccc aag gtg gtg ttt gcc aag gag		4958	
Ser Phe His Leu His Val Ala Glu Pro Lys Val Val Phe Ala Lys Glu			
1615	1620	1625	
cag cca gca cac agg gag gtg cag gct gag gcg ggg gcc agt gcc acg		5006	
Gln Pro Ala His Arg Glu Val Gln Ala Glu Ala Gly Ala Ser Ala Thr			
1630	1635	1640	1645
ctg agc tgc gag gtg gcc cag aca gag gtg acg tgg tac aag		5054	
Leu Ser Cys Glu Val Ala Gln Ala Thr Glu Val Thr Trp Tyr Lys			
1650	1655	1660	
gat ggg aag aag ctg agt tcc agc tcg aaa gtg cgc gtg gag gcc gtg		5102	
Asp Gly Lys Lys Leu Ser Ser Ser Lys Val Arg Val Glu Ala Val			
1665	1670	1675	
ggc tgc aca cgg agg ctg gtg cag cag gcg ggc cag gcg gat gct		5150	
Gly Cys Thr Arg Arg Leu Val Val Gln Gln Ala Gly Gln Ala Asp Ala			
1680	1685	1690	
ggg gag tac agc tgt gag gcg ggg ggc caa cgg ctg tcc ttc cgc ctg		5198	
Gly Glu Tyr Ser Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe Arg Leu			
1695	1700	1705	
cac gtg gca gag ctg gag ccc caa att tca gag aga ccc tgc cgc agg		5246	
His Val Ala Glu Leu Glu Pro Gln Ile Ser Glu Arg Pro Cys Arg Arg			
1710	1715	1720	1725
gag cct ctg gtg gtc aag gag cat gaa gac atc atc ctg acc gcc aca		5294	
Glu Pro Leu Val Val Lys Glu His Glu Asp Ile Ile Leu Thr Ala Thr			
1730	1735	1740	
ctg gcc aca ccc tct gcg gcc acg gtg acc tgg ctc aag gat ggt gtg		5342	
Leu Ala Thr Pro Ser Ala Ala Thr Val Thr Trp Leu Lys Asp Gly Val			
1745	1750	1755	
gag att cgc cgc agc aag cgg cat gag aca gcc agc cag ggg gac acc		5390	
Glu Ile Arg Arg Ser Lys Arg His Glu Thr Ala Ser Gln Gly Asp Thr			
1760	1765	1770	
cac acc ctg acc gtg cat ggc gcc cag gtt ctg gac agc gcc atc tac		5438	
His Thr Leu Thr Val His Gly Ala Gln Val Leu Asp Ser Ala Ile Tyr			
1775	1780	1785	
agc tgc cgt gtg ggc gca gag ggg cag gac ttc cca gtg cag gtg gaa		5486	
Ser Cys Arg Val Gly Ala Glu Gly Gln Asp Phe Pro Val Gln Val Glu			
1790	1795	1800	1805
gag gtg gcc gcc aag ttc tgc cgg ctg gag cct gtg tgc ggc gag		5534	
Glu Val Ala Ala Lys Phe Cys Arg Leu Leu Glu Pro Val Cys Gly Glu			

1810	1815	1820	
ctg ggt ggc acg gtg aca ctg gcc tgc gag cta agc cca gcg tgt gca Leu Gly Gly Thr Val Thr Leu Ala Cys Glu Leu Ser Pro Ala Cys Ala 1825	1830	1835	5582
gag gtg gtg tgg cgc tgc ggc aac acg cag cct cgg gtg ggc aag cgc Glu Val Val Trp Arg Cys Gly Asn Thr Gln Pro Arg Val Gly Lys Arg 1840	1845	1850	5630
ttc cag atg gtg gcc gag ggg ccc gtg cgc tca ctc act gtg ttg ggg Phe Gln Met Val Ala Glu Gly Pro Val Arg Ser Leu Thr Val Leu Gly 1855	1860	1865	5678
ctg cgc gca gag gac gca ggg gag tac gtg tgt gag agc cgt gat gac Leu Arg Ala Glu Asp Ala Gly Glu Tyr Val Cys Glu Ser Arg Asp Asp 1870	1875	1880	5726
cac acc agt gcg cag ctc acc gtc agt gtg ccc cga gtg gtg aag ttt His Thr Ser Ala Gln Leu Thr Val Ser Val Pro Arg Val Val Lys Phe 1890	1895	1900	5774
atg tct ggg ctg agc acc gtg gtc gca gag gag ggc ggc gag gcc acc Met Ser Gly Leu Ser Thr Val Val Ala Glu Glu Gly Glu Ala Thr 1905	1910	1915	5822
ttc cag tgc gtg tgg tcc ccc agt gat gtg gca gtc gtg tgg ttc cgg Phe Gln Cys Val Val Ser Pro Ser Asp Val Ala Val Val Trp Phe Arg 1920	1925	1930	5870
gac ggt gcc ctg ctt cag ccc agc gag aag ttt gcc ata tca cag agt Asp Gly Ala Leu Leu Gln Pro Ser Glu Lys Phe Ala Ile Ser Gln Ser 1935	1940	1945	5918
ggc gcc agc cac agc ctg acc atc tca gac ctg gtg ctg gag gac gcg Gly Ala Ser His Ser Leu Thr Ile Ser Asp Leu Val Leu Glu Asp Ala 1950	1955	1960	5966
ggc cag atc acc gtg gag gct gag ggc gcc tca tcc tct gct gcc ctg Gly Gln Ile Thr Val Glu Ala Glu Gly Ala Ser Ser Ala Ala Leu 1970	1975	1980	6014
agg gtc cga gag gcg cct gtg ctg ttc aaa aag aag ctg gag ccg cag Arg Val Arg Glu Ala Pro Val Leu Phe Lys Lys Lys Leu Glu Pro Gln 1985	1990	1995	6062
acg gtg gag gag cgg agc tcg gtg acc ctg gag gtg gag ctg acg cgg Thr Val Glu Glu Arg Ser Ser Val Thr Leu Glu Val Glu Leu Thr Arg 2000	2005	2010	6110
ccg tgg ccg gag ctg agg tgg aca cgg aac gcg acg gcc ctg gcg ccg Pro Trp Pro Glu Leu Arg Trp Thr Arg Asn Ala Thr Ala Leu Ala Pro 2015	2020	2025	6158
gga aag aac gtg gag atc cac gcc gag ggc gcc cgc cac cgc ctg gtt Gly Lys Asn Val Glu Ile His Ala Glu Gly Ala Arg His Arg Leu Val 2030	2035	2040	6206
ctg cac aac gta ggt ttt gcc gac cgt ggc ttc ttt ggc tgc gag acg Leu His Asn Val Gly Phe Ala Asp Arg Gly Phe Phe Gly Cys Glu Thr 2050	2055	2060	6254

atg gag aag cac cgc ggt gtg ctg gag tgt cag gtg tcc cgg gcc agc Met Glu Lys His Arg Gly Val Leu Glu Cys Gln Val Ser Arg Ala Ser 2305 2310 2315	7022
gcc cag gtg cggtt aag ggc agt cag gag ctg cag ccc ggg ccc Ala Gln Val Arg Trp Phe Lys Gly Ser Gln Glu Leu Gln Pro Gly Pro 2320 2325 2330	7070
aag tac gag ctg gtc agt gat ggc ctc tac cgc aag ctg atc atc agt Lys Tyr Glu Leu Val Ser Asp Gly Leu Tyr Arg Lys Leu Ile Ile Ser 2335 2340 2345	7118
gat gtc cac gca gag gac gag gac acc tac acc tgt gac gcc ggt gat Asp Val His Ala Glu Asp Glu Asp Thr Tyr Thr Cys Asp Ala Gly Asp 2350 2355 2360 2365	7166
gtc aag acc agt gca cag ttc ttc gtg gaa gag caa tcc atc acc att Val Lys Thr Ser Ala Gln Phe Phe Val Glu Glu Gln Ser Ile Thr Ile 2370 2375 2380	7214
gtg cgg ggt ctg cag gac gtg aca gtg atg gag ccc gct cct gcc tgg Val Arg Gly Leu Gln Asp Val Thr Val Met Glu Pro Ala Pro Ala Trp 2385 2390 2395	7262
ttt gag tgt gag acc tcc atc ccc tca gtg cgg cca cct aag tgg ctc Phe Glu Cys Glu Thr Ser Ile Pro Ser Val Arg Pro Pro Lys Trp Leu 2400 2405 2410	7310
ctg ggg aag acg gtg ttg cag gct ggg ggg aac gtg ggc ctg gag cag Leu Gly Lys Thr Val Leu Gln Ala Gly Gly Asn Val Gly Leu Glu Gln 2415 2420 2425	7358
gag ggc acg gtg cac cgg ctg atg ctg cgg cgg acc tgc tcc acc atg Glu Gly Thr Val His Arg Leu Met Leu Arg Arg Thr Cys Ser Thr Met 2430 2435 2440 2445	7406
acc ggg ccc gtg cac ttc acc gtt ggc aag tcg cgc tcc tct gcc cgc Thr Gly Pro Val His Phe Thr Val Gly Lys Ser Arg Ser Ser Ala Arg 2450 2455 2460	7454
ctg gtg gtc tca gac atc ccc gta gtc ctc aca cgg ccg ttg gag ccc Leu Val Val Ser Asp Ile Pro Val Val Leu Thr Arg Pro Leu Glu Pro 2465 2470 2475	7502
aag aca ggg cgt gag ctg cag tca gtg gtc ctg tcc tgc gac ttc cgg Lys Thr Gly Arg Glu Leu Gln Ser Val Val Leu Ser Cys Asp Phe Arg 2480 2485 2490	7550
cca gcc ccc aag gct gtg cag tgg tac aag gat gac acg ccc ctg tct Pro Ala Pro Lys Ala Val Gln Trp Tyr Lys Asp Asp Thr Pro Leu Ser 2495 2500 2505	7598
ccc tct gag aag ttt aag atg agc ctg gag ggt cag atg gct gag ctg Pro Ser Glu Lys Phe Lys Met Ser Leu Glu Gly Gln Met Ala Glu Leu 2510 2515 2520 2525	7646
cgc atc ctc cgg ctc atg cct gct gat gct ggt gtc tac cgg tgc cag Arg Ile Leu Arg Leu Met Pro Ala Asp Ala Gly Val Tyr Arg Cys Gln 2530 2535 2540	7694
gcg ggc agt gcc cac agc agc act gag gtc act gtg gaa gcg cgg gag	7742

Ala	Gly	Ser	Ala	His	Ser	Ser	Thr	Glu	Val	Thr	Val	Glu	Ala	Arg	Glu	
2545																2555
gtg	aca	gtg	aca	ggg	ccg	cta	cag	gat	gca	gag	gcc	acg	gag	gag	ggc	7790
Val	Thr	Val	Thr	Gly	Pro	Leu	Gln	Asp	Ala	Glu	Ala	Thr	Glu	Glu	Gly	
2560							2565					2570				
tgg	gcc	agc	ttc	tcc	tgt	gag	ctg	tcc	cac	gag	gat	gag	gag	gtc	gag	7838
Trp	Ala	Ser	Phe	Ser	Cys	Glu	Leu	Ser	His	Glu	Asp	Glu	Glu	Val	Glu	
2575							2580					2585				
tgg	tcg	ctc	aac	ggg	atg	ccc	ctg	tac	aac	gac	agc	ttc	cat	gag	atc	7886
Trp	Ser	Leu	Asn	Gly	Met	Pro	Leu	Tyr	Asn	Asp	Ser	Phe	His	Glu	Ile	
2590			2595						2600				2605			
tca	cac	aag	ggc	cgg	cgc	cac	acg	ctg	gta	ctg	aag	agc	atc	cag	cgg	7934
Ser	His	Lys	Gly	Arg	Arg	His	Thr	Leu	Val	Leu	Lys	Ser	Ile	Gln	Arg	
2610								2615					2620			
gct	gat	gcf	ggc	ata	gta	cgc	gcc	tcc	tcc	ctg	aag	gtg	tcg	acc	tct	7982
Ala	Asp	Ala	Gly	Ile	Val	Arg	Ala	Ser	Ser	Leu	Lys	Val	Ser	Thr	Ser	
2625							2630					2635				
gcc	cgc	ctg	gag	gtc	cga	gtg	aag	ccg	gtg	gtg	tcc	ctg	aag	gcf	ctg	8030
Ala	Arg	Leu	Glu	Val	Arg	Val	Lys	Pro	Val	Val	Phe	Leu	Lys	Ala	Leu	
2640							2645					2650				
gat	gac	ctg	tcc	gca	gag	gag	cgc	ggc	acc	ctg	gcc	ctg	cag	tgt	gaa	8078
Asp	Asp	Leu	Ser	Ala	Glu	Glu	Arg	Gly	Thr	Leu	Ala	Leu	Gln	Cys	Glu	
2655							2660					2665				
gtc	tct	gac	ccc	gag	gcc	cat	gtg	gtg	tgg	cgc	aaa	gat	ggc	gtg	cag	8126
Val	Ser	Asp	Pro	Glu	Ala	His	Val	Val	Trp	Arg	Lys	Asp	Gly	Val	Gln	
2670							2675					2680			2685	
ctg	ggc	ccc	agt	gac	aag	tat	gac	tcc	ctg	cac	acg	gcf	ggc	acg	cgg	8174
Leu	Gly	Pro	Ser	Asp	Lys	Tyr	Asp	Phe	Leu	His	Thr	Ala	Gly	Thr	Arg	
2690								2695					2700			
ggg	ctc	gtg	gtg	cat	gac	gtg	agc	cct	gaa	gac	gcc	ggc	ctg	tac	acc	8222
Gly	Leu	Val	Val	His	Asp	Val	Ser	Pro	Glu	Asp	Ala	Gly	Leu	Tyr	Thr	
2705							2710					2715				
tgc	cac	gtg	ggc	tcc	gag	gag	acc	cgg	gcc	cgg	gtc	cgc	gtg	cac	gat	8270
Cys	His	Val	Gly	Ser	Glu	Glu	Thr	Arg	Ala	Arg	Val	Arg	Val	His	Asp	
2720							2725					2730				
ctg	cac	gtg	ggc	atc	acc	aag	agg	ctg	aag	aca	atg	gag	gtg	ctg	gaa	8318
Leu	His	Val	Gly	Ile	Thr	Lys	Arg	Leu	Lys	Thr	Met	Glu	Val	Leu	Glu	
2735							2740					2745				
ggg	gaa	agc	tgc	agc	ttt	gag	tgc	gtc	tcc	cac	gag	agt	gcc	agc	8366	
Gly	Glu	Ser	Cys	Ser	Phe	Glu	Cys	Val	Leu	Ser	His	Glu	Ser	Ala	Ser	
2750							2755					2760			2765	
gac	ccg	gcc	atg	tgg	aca	gtc	ggt	ggg	aag	aca	gtg	ggc	agc	tcc	agc	8414
Asp	Pro	Ala	Met	Trp	Thr	Val	Gly	Gly	Lys	Thr	Val	Gly	Ser	Ser	Ser	
2770								2775					2780			
cgc	ttc	cag	gcc	aca	cgt	cag	ggc	cga	aaa	tac	atc	ctg	gtg	gtc	cgg	8462
Arg	Phe	Gln	Ala	Thr	Arg	Gln	Gly	Arg	Lys	Tyr	Ile	Leu	Val	Val	Arg	

2785

2790

2795

gag gct gca cca agt gat gcc ggg gag gtg gtc ttc tct gtg cggt ggc 8510
 Glu Ala Ala Pro Ser Asp Ala Gly Glu Val Val Phe Ser Val Arg Gly
 2800 2805 2810

ctc acc tcc aag gcc tca ctc att gtc aga gag agg ccg gcc gcc atc 8558
 Leu Thr Ser Lys Ala Ser Leu Ile Val Arg Glu Arg Pro Ala Ala Ile
 2815 2820 2825

atc aag ccc ctg gaa gac cag tgg gtg gcg cca ggg gag gac gtg gag 8606
 Ile Lys Pro Leu Glu Asp Gln Trp Val Ala Pro Gly Glu Asp Val Glu
 2830 2835 2840 2845

ctg cgc tgt gag ctg tca cgg gca acg ccc gtg cac tgg ctg aag 8654
 Leu Arg Cys Glu Leu Ser Arg Ala Gly Thr Pro Val His Trp Leu Lys
 2850 2855 2860

gac agg aag gcc atc cgc aag agc cag aag tat gat gtg gtc tgc gag 8702
 Asp Arg Lys Ala Ile Arg Lys Ser Gln Lys Tyr Asp Val Val Cys Glu
 2865 2870 2875

ggc acg atg gcc atg ctg gtc atc cgc ggg gcc tcg ctc aag gac gcg 8750
 Gly Thr Met Ala Met Leu Val Ile Arg Gly Ala Ser Leu Lys Asp Ala
 2880 2885 2890

ggc gag tac acg tgt gag gtg gag gct tcc aag agc aca gcc agc ctc 8798
 Gly Glu Tyr Thr Cys Glu Val Glu Ala Ser Lys Ser Thr Ala Ser Leu
 2895 2900 2905

cat gtg gaa gaa aaa gca aac tgc ttc aca gag gag ctg acc aat ctg 8846
 His Val Glu Glu Lys Ala Asn Cys Phe Thr Glu Glu Leu Thr Asn Leu
 2910 2915 2920 2925

cag gtg gag gag aaa ggc aca gct gtg ttc acg tgc aag acg gag cac 8894
 Gln Val Glu Glu Lys Gly Thr Ala Val Phe Thr Cys Lys Thr Glu His
 2930 2935 2940

ccc gcg gcc aca gtg acc tgg cgc aag ggc ctc ttg gag cta cgg gcc 8942
 Pro Ala Ala Thr Val Thr Trp Arg Lys Gly Leu Leu Glu Leu Arg Ala
 2945 2950 2955

tca ggg aag cac cag ccc agc cag gag ggc ctg acc ctg cgg ctc acc 8990
 Ser Gly Lys His Gln Pro Ser Gln Glu Gly Leu Thr Leu Arg Leu Thr
 2960 2965 2970

atc agt gcc ctg gag aag gca gac agc gac acc tat acc tgc gac att 9038
 Ile Ser Ala Leu Glu Lys Ala Asp Ser Asp Thr Tyr Thr Cys Asp Ile
 2975 2980 2985

ggc cag gcc cag tcc cgg gcc cag ctc cta gtg caa ggc cgg aga gtg 9086
 Gly Gln Ala Gln Ser Arg Ala Gln Leu Leu Val Gln Gly Arg Arg Val
 2990 2995 3000 3005

cac atc atc gag gac ctg gag gat gtg gat gtg cag gag ggc tcc tcg 9134
 His Ile Ile Glu Asp Leu Glu Asp Val Asp Val Gln Glu Gly Ser Ser
 3010 3015 3020

gcc acc ttc cgt tgc cgg atc tcc ccg gcc aac tac gag gag cct gtg cac 9182
 Ala Thr Phe Arg Cys Arg Ile Ser Pro Ala Asn Tyr Glu Pro Val His
 3025 3030 3035

tgg ttc ctg gac aag aca ccc ctg cat gcc aac gag ctc aat gag atc Trp Phe Leu Asp Lys Thr Pro Leu His Ala Asn Glu Leu Asn Glu Ile 3040 3045 3050	9230
gat gcc cag ccc ggg ggc tac cac gtg ctg acc ctg cgg cag ctg gcg Asp Ala Gln Pro Gly Gly Tyr His Val Leu Thr Leu Arg Gln Leu Ala 3055 3060 3065	9278
ctc aag gac tcg ggc acc atc tac ttt gag gcg ggt gac cag cgg gcc Leu Lys Asp Ser Gly Thr Ile Tyr Phe Glu Ala Gly Asp Gln Arg Ala 3070 3075 3080 3085	9326
tgc gcc gcc ctg cggt act gag aag cca agc gtc ttc tcc cgg gag Ser Ala Ala Leu Arg Val Thr Glu Lys Pro Ser Val Phe Ser Arg Glu 3090 3095 3100	9374
ctc aca gat gcc acc atc aca gag ggt gag gac ttg acc ctg gtg tgc Leu Thr Asp Ala Thr Ile Thr Glu Gly Glu Asp Leu Thr Leu Val Cys 3105 3110 3115	9422
gag acc agc acc tgc gac att cct atg tgc tgg acc aag gat ggg aag Glu Thr Ser Thr Cys Asp Ile Pro Met Cys Trp Thr Lys Asp Gly Lys 3120 3125 3130	9470
acc ctg cgg ggg tct gcc cgg tgc cag ctg agc cat gag ggc cac cgg Thr Leu Arg Gly Ser Ala Arg Cys Gln Leu Ser His Glu Gly His Arg 3135 3140 3145	9518
gcc cag ctg ctc atc act ggg gcc acc ctg cag gac agt gga cgc tac Ala Gln Leu Leu Ile Thr Gly Ala Thr Leu Gln Asp Ser Gly Arg Tyr 3150 3155 3160 3165	9566
aag tgt gag gct ggg ggc gcc tgc agc agc tcc att gtc agg gtg cat Lys Cys Glu Ala Gly Gly Ala Cys Ser Ser Ile Val Arg Val His 3170 3175 3180	9614
gcg cgg cca gtg cgg ttc cag gag gcc ctg aag gac ctg gag gtg ctg Ala Arg Pro Val Arg Phe Gln Glu Ala Leu Lys Asp Leu Glu Val Leu 3185 3190 3195	9662
gag ggt ggt gct gcc aca ctg cgc tgt gtg ctg tca tct gtg gct gcg Glu Gly Ala Ala Thr Leu Arg Cys Val Leu Ser Ser Val Ala Ala 3200 3205 3210	9710
ccc gtg aag tgg tgc tat gga aac aac gtc ctg agg cca ggt gac aaa Pro Val Lys Trp Cys Tyr Gly Asn Asn Val Leu Arg Pro Gly Asp Lys 3215 3220 3225	9758
tac agc cta cgc cag gag ggt gcc atg ctg gag ctg gtg gtc cgg aac Tyr Ser Leu Arg Gln Glu Gly Ala Met Leu Glu Leu Val Val Arg Asn 3230 3235 3240 3245	9806
ctc cgg ccg cag gac agc ggg cgg tac tca tgc tcc ttc ggg gac cag Leu Arg Pro Gln Asp Ser Gly Arg Tyr Ser Cys Ser Phe Gly Asp Gln 3250 3255 3260	9854
act act tct gcc acc ctc aca gtg act gcc ctg cct gcc cag ttc atc Thr Thr Ser Ala Thr Leu Thr Val Thr Ala Leu Pro Ala Gln Phe Ile 3265 3270 3275	9902

ggg aaa ctg aga aac aag gag gcc aca gaa ggg gcc acg gcc acg ctg Gly Lys Leu Arg Asn Lys Glu Ala Thr Glu Gly Ala Thr Ala Thr Leu 3280 3285 3290	9950
cgg tgt gag ctg agc aag aca gcc cct gtg gag tgg aga aag ggg tcc Arg Cys Glu Leu Ser Lys Thr Ala Pro Val Glu Trp Arg Lys Gly Ser 3295 3300 3305	9998
gag acc ctc aga gat ggg gac aga tac tgt ctg agg cag gac ggg gcc Glu Thr Leu Arg Asp Gly Asp Arg Tyr Cys Leu Arg Gln Asp Gly Ala 3310 3315 3320 3325	10046
atg tgt gag ctg cag atc cgt ggc ctg gcc atg gtg gat gcc gcg gag Met Cys Glu Leu Gln Ile Arg Gly Leu Ala Met Val Asp Ala Ala Glu 3330 3335 3340	10094
tac tcg tgt gtg tgt gga gag gag agg acc tca gcc tca ctc acc atc Tyr Ser Cys Val Cys Gly Glu Arg Thr Ser Ala Ser Leu Thr Ile 3345 3350 3355	10142
agg ccc atg cct gcc cac ttc ata gga aga ctg aga cac caa gag agc Arg Pro Met Pro Ala His Phe Ile Gly Arg Leu Arg His Gln Glu Ser 3360 3365 3370	10190
ata gaa ggg gcc aca gcc acg ctg cgg tgt gag ctg agc aag gcg gcc Ile Glu Gly Ala Thr Ala Thr Leu Arg Cys Glu Leu Ser Lys Ala Ala 3375 3380 3385	10238
ccc gtg gag tgg agg aag ggg cgt gag agc ctc aga gat ggg gac aga Pro Val Glu Trp Arg Lys Gly Arg Glu Ser Leu Arg Asp Gly Asp Arg 3390 3395 3400 3405	10286
cat agc ctg agg cag gac ggg gct gtg tgc gag ctg cag atc tgt ggc His Ser Leu Arg Gln Asp Gly Ala Val Cys Glu Leu Gln Ile Cys Gly 3410 3415 3420	10334
ctg gct gtg gca gat gct ggg gag tac tcc tgt gtg tgt ggg gag gag Leu Ala Val Ala Asp Ala Gly Glu Tyr Ser Cys Val Cys Gly Glu Glu 3425 3430 3435	10382
agg acc tct gcc act ctc acc gtg aag gcc ctg cca gcc aag ttc aca Arg Thr Ser Ala Thr Leu Thr Val Lys Ala Leu Pro Ala Lys Phe Thr 3440 3445 3450	10430
gag ggt ctg agg aat gaa gag gcc gtg gaa ggg gcc aca gcc atg ttg Glu Gly Leu Arg Asn Glu Ala Val Glu Gly Ala Thr Ala Met Leu 3455 3460 3465	10478
tgg tgt gaa ctg agc aag gtg gcc cct gtg gag tgg agg aag ggg ccc Trp Cys Glu Leu Ser Lys Val Ala Pro Val Glu Trp Arg Lys Gly Pro 3470 3475 3480 3485	10526
gag aac ctc aga gat ggg gac aga tac atc ctg agg cag gag ggg acc Glu Asn Leu Arg Asp Gly Asp Arg Tyr Ile Leu Arg Gln Glu Gly Thr 3490 3495 3500	10574
agg tgt gag ctg cag atc tgt ggc ctg gcc atg gcg gac gcc ggg gag Arg Cys Glu Leu Gln Ile Cys Gly Leu Ala Met Ala Asp Ala Gly Glu 3505 3510 3515	10622
tac ttg tgt gtg tgc ggg cag gag agg acc tca gcc acg ctc acc atc	10670

Tyr Leu Cys Val Cys Gly Gln Glu Arg Thr Ser Ala Thr Leu Thr Ile			
3520	3525	3530	
agg gct ctg cct gcc agg ttc ata gaa gat gtg aaa aac cag gag gcc	Arg Ala Leu Pro Ala Arg Phe Ile Glu Asp Val Lys Asn Gln Glu Ala	10718	.
3535	3540	3545	
aga gaa ggg gcc acg gct gtg ctg cag tgt gag ctg aac agt gca gcc	Arg Glu Gly Ala Thr Ala Val Leu Gln Cys Glu Leu Asn Ser Ala Ala	10766	
3550	3555	3560	3565
cct gtg gag tgg aga aag ggg tct gag acc ctc aga gat ggg gac aga	Pro Val Glu Trp Arg Lys Gly Ser Glu Thr Leu Arg Asp Gly Asp Arg	10814	
3570	3575	3580	
tac agc ctg agg cag gac ggg act aaa tgt gag ctg cag att cgt ggc	Tyr Ser Leu Arg Gln Asp Gly Thr Lys Cys Glu Leu Gln Ile Arg Gly	10862	
3585	3590	3595	
ctg gcc atg gca gac act ggg gag tac tcg tgc gtg tgc ggg cag gag	Leu Ala Met Ala Asp Thr Gly Glu Tyr Ser Cys Val Cys Gly Gln Glu	10910	
3600	3605	3610	
agg acc tcg gct atg ctc acc gtc agg gct cta ccc atc aag ttc aca	Arg Thr Ser Ala Met Leu Thr Val Arg Ala Leu Pro Ile Lys Phe Thr	10958	
3615	3620	3625	
gag ggt ctg agg aac gaa gag gcc aca gaa ggg gca aca gcc gtg ctg	Glu Gly Leu Arg Asn Glu Glu Ala Thr Glu Gly Ala Thr Ala Val Leu	11006	
3630	3635	3640	3645
cggttgt gag ctg agc aag atg gcc ccc gtg gag tgg tgg aag ggg cat	Arg Cys Glu Leu Ser Lys Met Ala Pro Val Glu Trp Trp Lys Gly His	11054	
3650	3655	3660	
gag acc ctc aga gat gga gac aga cac agc ctg agg cag gac ggg gcc	Glu Thr Leu Arg Asp Gly Asp Arg His Ser Leu Arg Gln Asp Gly Ala	11102	
3665	3670	3675	
agg tgt gag ctg cag atc cgc ggc ctc gtg gca gag gac gct ggg gag	Arg Cys Glu Leu Gln Ile Arg Gly Leu Val Ala Glu Asp Ala Gly Glu	11150	
3680	3685	3690	
tac ctg tgc atg tgc ggg aag gag agg acc tca gcc atg ctc acc gtc	Tyr Leu Cys Met Cys Gly Lys Glu Arg Thr Ser Ala Met Leu Thr Val	11198	
3695	3700	3705	
agg gcc atg cct tcc aag ttc ata gag ggt ctg agg aat gaa gag gcc	Arg Ala Met Pro Ser Lys Phe Ile Glu Gly Leu Arg Asn Glu Glu Ala	11246	
3710	3715	3720	3725
aca gaa ggg gac acg gcc acg ctg tgg tgt gag ctg agc aag gcg gca	Thr Glu Gly Asp Thr Ala Thr Leu Trp Cys Glu Leu Ser Lys Ala Ala	11294	
3730	3735	3740	
ccg gtg gag tgg agg aag ggg cat gag acc ctc aga gat ggg gac aga	Pro Val Glu Trp Arg Lys Gly His Glu Thr Leu Arg Asp Gly Asp Arg	11342	
3745	3750	3755	
cac agc ctg agg cag gac ggg tcc agg tgt gag ctg cag atc cgt ggc	His Ser Leu Arg Gln Asp Gly Ser Arg Cys Glu Leu Gln Ile Arg Gly	11390	

3760	3765	3770	
ctg gct gtg gtg gat gcc ggg gag tac tcg tgt gtg tgc ggg cag gag Leu Ala Val Val Asp Ala Gly Glu Tyr Ser Cys Val Cys Gly Gln Glu 3775 3780 3785			
11438			
agg acc tca gcc aca ctc act gtc agg gcc ctg cct gcc aga ttc ata Arg Thr Ser Ala Thr Leu Thr Val Arg Ala Leu Pro Ala Arg Phe Ile 3790 3795 3800 3805			
11486			
gaa gat gtg aaa aac cag gag gcc aga gaa ggg gcc acg gcc gtg ctg Glu Asp Val Lys Asn Gln Glu Ala Arg Glu Gly Ala Thr Ala Val Leu 3810 3815 3820			
11534			
caa tgt gag ctg agc aag gcg gcc ccc gtg gag tgg agg aag ggg tct Gln Cys Glu Leu Ser Lys Ala Ala Pro Val Glu Trp Arg Lys Gly Ser 3825 3830 3835			
11582			
gag acc ctc aga ggt ggg gac aga tac agc ctg agg cag gat ggg acc Glu Thr Leu Arg Gly Gly Asp Arg Tyr Ser Leu Arg Gln Asp Gly Thr 3840 3845 3850			
11630			
aga tgt gag ctg cag att cat ggc ctg tct gtg gca gac act ggg gag Arg Cys Glu Leu Gln Ile His Gly Leu Ser Val Ala Asp Thr Gly Glu 3855 3860 3865			
11678			
tat tcg tgt gtg tgc ggg cag gag agg acc tcg gcc aca ctc acc gtc Tyr Ser Cys Val Cys Gly Gln Glu Arg Thr Ser Ala Thr Leu Thr Val 3870 3875 3880 3885			
11726			
agg gcc cca cag cca gtg ttc cgg gag ccg ctg cag agt ctg cag gcg Arg Ala Pro Gln Pro Val Phe Arg Glu Pro Leu Gln Ser Leu Gln Ala 3890 3895 3900			
11774			
gag gag ggc tcc acg gcc acc ctg cag tgt gag ctg tct gag ccc act Glu Glu Gly Ser Thr Ala Thr Leu Gln Cys Glu Leu Ser Glu Pro Thr 3905 3910 3915			
11822			
tgt aca gtg gtc tgg agc aag ggt ggc ctg cag ctg cag gcc aat ggg Ala Thr Val Val Trp Ser Lys Gly Gly Leu Gln Leu Gln Ala Asn Gly 3920 3925 3930			
11870			
cgc cggtt cca cgg ctt cag ggc tgc acc gcg gag ctg gtg tta cag Arg Arg Glu Pro Arg Leu Gln Gly Cys Thr Ala Glu Leu Val Leu Gln 3935 3940 3945			
11918			
gac cta caa cgt gaa gac act ggc gaa tac act tgc acc tgt ggc tcc Asp Leu Gln Arg Glu Asp Thr Gly Glu Tyr Thr Cys Thr Cys Gly Ser 3950 3955 3960 3965			
11966			
cag gcc acc agt gcc acc ctc act gtc aca gct gcg cct gtg cgg ttc Gln Ala Thr Ser Ala Thr Leu Thr Val Thr Ala Ala Pro Val Arg Phe 3970 3975 3980			
12014			
ctc cga gag ctg cag cac cag gag gtg gat gag gga ggc acc gca cac Leu Arg Glu Leu Gln His Gln Glu Val Asp Glu Gly Gly Thr Ala His 3985 3990 3995			
12062			
tta tgc tgc gag ctg agc cgg ggt gcg agc gtg gag tgg cgc aag Leu Cys Cys Glu Leu Ser Arg Ala Gly Ala Ser Val Glu Trp Arg Lys 4000 4005 4010			
12110			

ggc tcc cta cag ctc ttc cct tgt gcc aag tac cag atg gtg cag gat Gly Ser Leu Gln Leu Phe Pro Cys Ala Lys Tyr Gln Met Val Gln Asp 4015 4020 4025	12158
ggt gca gct gca gag ctg ctg gta cgc gga gtg gag cag gag gat gcg Gly Ala Ala Ala Glu Leu Leu Val Arg Gly Val Glu Gln Glu Asp Ala 4030 4035 4040 4045	12206
ggt gac tac acg tgt gac acg ggc cac acg cag agc atg gcc agc ctc Gly Asp Tyr Thr Cys Asp Thr Gly His Thr Gln Ser Met Ala Ser Leu 4050 4055 4060	12254
tct gtc cgt gtc ccc agg ccc aag ttc aag acc cgg ctt cag agt ctg Ser Val Arg Val Pro Arg Pro Lys Phe Lys Thr Arg Leu Gln Ser Leu 4065 4070 4075	12302
gag cag gag aca ggt gac ata gcc cgg ctg tgc tgt cag ctg agt gat Glu Gln Glu Thr Gly Asp Ile Ala Arg Leu Cys Cys Gln Leu Ser Asp 4080 4085 4090	12350
gca gag tcg ggg gcc gtg gtg caa tgg ctc aag gag ggc gtg gag ctg Ala Glu Ser Gly Ala Val Val Gln Trp Leu Lys Glu Gly Val Glu Leu 4095 4100 4105	12398
cat gcg ggc ccc aag tac gag atg cgg agc cag ggg gcc acg cgg gag His Ala Gly Pro Lys Tyr Glu Met Arg Ser Gln Gly Ala Thr Arg Glu 4110 4115 4120 4125	12446
ctg ctg atc cac caa ctg gag gcc aag gac acg ggc gag tat gcc tgt Leu Leu Ile His Gln Leu Glu Ala Lys Asp Thr Gly Glu Tyr Ala Cys 4130 4135 4140	12494
gtg aca ggc ggc cag aaa acc gct gcc tcc ctc agg gtc aca gag cct Val Thr Gly Gln Lys Thr Ala Ala Ser Leu Arg Val Thr Glu Pro 4145 4150 4155	12542
gag gtg acc att gta cgg ggg ctg gtt gat gcg gag gtg acg gcc gat Glu Val Thr Ile Val Arg Gly Leu Val Asp Ala Glu Val Thr Ala Asp 4160 4165 4170	12590
gag gat gtt gag ttc agc tgt gag gtg tcc agg gct gga gcc aca ggc Glu Asp Val Glu Phe Ser Cys Glu Val Ser Arg Ala Gly Ala Thr Gly 4175 4180 4185	12638
gtg cag tgg tgc cta cag ggc ctg cca ctg caa agc aat gag gtg aca Val Gln Trp Cys Leu Gln Gly Leu Pro Leu Gln Ser Asn Glu Val Thr 4190 4195 4200 4205	12686
gag gtg gct gtg cgg gat ggc cgc atc cac acc ctg cgg ctg aag ggc Glu Val Ala Val Arg Asp Gly Arg Ile His Thr Leu Arg Leu Lys Gly 4210 4215 4220	12734
gtg acg ccc gag gac gct ggc act gtc tcc ttc cat ttg gga aac cat Val Thr Pro Glu Asp Ala Gly Thr Val Ser Phe His Leu Gly Asn His 4225 4230 4235	12782
gct tcc tct gcc cag ctc acc gtc aga gct cct gag gtg acc atc ctg Ala Ser Ser Ala Gln Leu Thr Val Arg Ala Pro Glu Val Thr Ile Leu 4240 4245 4250	12830

gag ccc ctg cag gac gtg cag ctc agt gag ggc cag gat gcc agc ttc Glu Pro Leu Gln Asp Val Gln Leu Ser Glu Gly Gln Asp Ala Ser Phe 4255 4260 4265	12878
cag tgc cgg cta tcc aga gct tca ggc cag gag gcc cgcc tgg gct tta Gln Cys Arg Leu Ser Arg Ala Ser Gly Gln Glu Ala Arg Trp Ala Leu 4270 4275 4280 4285	12926
gga ggg gtg ccc ctg cag gcc aac gag atg aat gac atc act gtg gag Gly Gly Val Pro Leu Gln Ala Asn Glu Met Asn Asp Ile Thr Val Glu 4290 4295 4300	12974
cag ggc aca ctc cac ctg ctc acc ctg cac aag gtg acc ctt gag gat Gln Gly Thr Leu His Leu Leu Thr Leu His Lys Val Thr Leu Glu Asp 4305 4310 4315	13022
gct gga act gtc agt ttc cac gtg ggc acg tgt agc tct gag gcc cag Ala Gly Thr Val Ser Phe His Val Gly Thr Cys Ser Ser Glu Ala Gln 4320 4325 4330	13070
ctg aaa gtc aca gcc aag aac acg gtg gtg cgg ggg ctg gag aat gtg Leu Lys Val Thr Ala Lys Asn Thr Val Val Arg Gly Leu Glu Asn Val 4335 4340 4345	13118
gag gcg ctg gag ggc gag ggc ctg ttc gag tgc cag ctg tcc cag Glu Ala Leu Glu Gly Glu Ala Leu Phe Glu Cys Gln Leu Ser Gln 4350 4355 4360 4365	13166
ccc gag gtg gcc gcc cac acc tgg ctg ctg gac gac gaa ccc gtg cgc Pro Glu Val Ala Ala His Thr Trp Leu Leu Asp Asp Glu Pro Val Arg 4370 4375 4380	13214
acc tcg gag aac gcc gag gtg gtc ttc ttc gag aac ggc ctg cgc cac Thr Ser Glu Asn Ala Glu Val Val Phe Phe Glu Asn Gly Leu Arg His 4385 4390 4395	13262
ctg ctg ctg ctc aaa aac ttg cgg cca caa gac agc tgc cgg gtg acc Leu Leu Leu Lys Asn Leu Arg Pro Gln Asp Ser Cys Arg Val Thr 4400 4405 4410	13310
tcc ctg gct ggg gat atg gtg acg tcc gca ttc ctc acg gtc cga ggc Phe Leu Ala Gly Asp Met Val Thr Ser Ala Phe Leu Thr Val Arg Gly 4415 4420 4425	13358
tgg cgc ctg gag atc ctg gag cct ctg aaa aac gcg gcg gtc cgg gcc Trp Arg Leu Glu Ile Leu Glu Pro Leu Lys Asn Ala Ala Val Arg Ala 4430 4435 4440 4445	13406
ggc gca cag gca cgc ttc acc tgc acg ctc agc gag gcg gtg ccc gtg Gly Ala Gln Ala Arg Phe Thr Cys Thr Leu Ser Glu Ala Val Pro Val 4450 4455 4460	13454
gga gag gcg tcc tgg tac atc aat ggc gcg gca gtg cag ccg gat gac Gly Glu Ala Ser Trp Tyr Ile Asn Gly Ala Ala Val Gln Pro Asp Asp 4465 4470 4475	13502
agc gac tgg act gtc acc gcc gac ggc agt cac caa gcc cta ctg ctg Ser Asp Trp Thr Val Thr Ala Asp Gly Ser His Gln Ala Leu Leu Leu 4480 4485 4490	13550
cgc agc gcc cag ccc cac cac gcc ggg gag gtc acc ttc gct tgc cgc	13598

Arg Ser Ala Gln Pro His His Ala Gly Glu Val Thr Phe Ala Cys Arg			
4495	4500	4505	
gac gcc gtg gcc tct gca cgg ctc acc gtg ctg ggc ctc cct gat ccc		13646	
Asp Ala Val Ala Ser Ala Arg Leu Thr Val Leu Gly Leu Pro Asp Pro			
4510	4515	4520	4525
cca gag gat gct gag gtg gtg gct cac agc agc cac act gtg aca ctg		13694	
Pro Glu Asp Ala Glu Val Val Ala His Ser Ser His Thr Val Thr Leu			
4530	4535	4540	
tct tgg gca gct ccc atg agt gat gga ggc ggt ggt ctc tgt ggc tac		13742	
Ser Trp Ala Ala Pro Met Ser Asp Gly Gly Gly Leu Cys Gly Tyr			
4545	4550	4555	
cgc gtg gag gtg aag gag ggg gcc aca ggc cag tgg cgg ctg tgc cac		13790	
Arg Val Glu Val Lys Glu Gly Ala Thr Gly Gln Trp Arg Leu Cys His			
4560	4565	4570	
gag ctg gtg cct gga ccc gag tgt gtg gat ggc ctg gcc ccc ggg		13838	
Glu Leu Val Pro Gly Pro Glu Cys Val Val Asp Gly Leu Ala Pro Gly			
4575	4580	4585	
gag acc tac cgc ttc cgt gtg gca gct gtg ggc cct gtg ggt gct ggg		13886	
Glu Thr Tyr Arg Phe Arg Val Ala Ala Val Gly Pro Val Gly Ala Gly			
4590	4595	4600	4605
gaa ccg gtt cac ctg ccc cag aca gtg cgg ctt gca gag cca ccg aag		13934	
Glu Pro Val His Leu Pro Gln Thr Val Arg Leu Ala Glu Pro Pro Lys			
4610	4615	4620	
cct gtg cct ccc cag ccc tca gcc cct gag agc cgg cag gtg gca gct		13982	
Pro Val Pro Pro Gln Pro Ser Ala Pro Glu Ser Arg Gln Val Ala Ala			
4625	4630	4635	
ggg gaa gat gtc tct ctg gag ctt gag gtg gtg gct gag gct ggt gag		14030	
Gly Glu Asp Val Ser Leu Glu Leu Glu Val Val Ala Glu Ala Gly Glu			
4640	4645	4650	
gtc atc tgg cac aag gga atg gag cgc atc cag ccc ggt ggg cgg ttc		14078	
Val Ile Trp His Lys Glu Met Glu Arg Ile Gln Pro Gly Gly Arg Phe			
4655	4660	4665	
gag gtg gtc tcc cag ggt cgg caa cag atg ctg gtg atc aag ggc ttc		14126	
Glu Val Val Ser Gln Gly Arg Gln Gln Met Leu Val Ile Lys Gly Phe			
4670	4675	4680	4685
acg gca gaa gac cag ggc gag tac cac tgt ggc ctg gct cag ggc tcc		14174	
Thr Ala Glu Asp Gln Gly Glu Tyr His Cys Gly Leu Ala Gln Gly Ser			
4690	4695	4700	
atc tgc cct gcg gct gcc acc ttc cag gtg gca ctg agc cca gcc tct		14222	
Ile Cys Pro Ala Ala Ala Thr Phe Gln Val Ala Leu Ser Pro Ala Ser			
4705	4710	4715	
gtg gat gag gcc cct cag ccc agc ttg ccc ccc gag gca gcc cag gag		14270	
Val Asp Glu Ala Pro Gln Pro Ser Leu Pro Pro Glu Ala Ala Gln Glu			
4720	4725	4730	
ggt gac ctg cac cta ctg tgg gag gcc ctg gct cgg aaa cgt cgc atg		14318	
Gly Asp Leu His Leu Leu Trp Glu Ala Leu Ala Arg Lys Arg Arg Met			

4735	4740	4745	
agc cgt gag ccc acg ctg gac tcc att agc gag ctg cca gag gag gac Ser Arg Glu Pro Thr Leu Asp Ser Ile Ser Glu Leu Pro Glu Glu Asp			14366
4750	4755	4760	4765
ggc cgc tcg cag cgc ctg cca cag gag gca gag gag gtg gca cct gat Gly Arg Ser Gln Arg Leu Pro Gln Ala Glu Glu Val Ala Pro Asp			14414
4770	4775	4780	
ctc tct gaa ggc tac tcc acg gcc gat gag ctg gcc cgc act gga gat Leu Ser Glu Gly Tyr Ser Thr Ala Asp Glu Leu Ala Arg Thr Gly Asp			14462
4785	4790	4795	
gct gac ctc tca cac acc agc tct gat gat gag tcc cgg gca ggc acc Ala Asp Leu Ser His Thr Ser Asp Asp Glu Ser Arg Ala Gly Thr			14510
4800	4805	4810	
cct tcc ctg gtc acc tac ctc aag aag gct ggg agg cca ggc acc tca Pro Ser Leu Val Thr Tyr Leu Lys Lys Ala Gly Arg Pro Gly Thr Ser			14558
4815	4820	4825	
cca ctg gcc agc aag gtt ggg gcc cca gca gcc ccc tct gtg aag cca Pro Leu Ala Ser Lys Val Gly Ala Pro Ala Ala Pro Ser Val Lys Pro			14606
4830	4835	4840	4845
cag cag cag cag gag cca ctg gct gct gtg cgc cca cca ctg gga gac Gln Gln Gln Glu Pro Leu Ala Ala Val Arg Pro Pro Leu Gly Asp			14654
4850	4855	4860	
ctg agc acc aaa gac ctg ggt gat ccc tca atg gac aag gca gct gtg Leu Ser Thr Lys Asp Leu Gly Asp Pro Ser Met Asp Lys Ala Ala Val			14702
4865	4870	4875	
aag atc cag gct gcc ttt aag ggc tac aag gtc cgg aag gag atg aag Lys Ile Gln Ala Ala Phe Lys Gly Tyr Lys Val Arg Lys Glu Met Lys			14750
4880	4885	4890	
cag cag gaa ggg ccc atg ttc tcc cac aca ttt ggg gac acc gag gca Gln Gln Glu Gly Pro Met Phe Ser His Thr Phe Gly Asp Thr Glu Ala			14798
4895	4900	4905	
cag gtg ggg gat gcc ctg cgg ctg gag tgt gtc gtg gcc agc aag gca Gln Val Gly Asp Ala Leu Arg Leu Glu Cys Val Val Ala Ser Lys Ala			14846
4910	4915	4920	4925
gat gtg cga gcc cgc tgg ctg aag gat ggt gtg gag ctg acc gat ggg Asp Val Arg Ala Arg Trp Leu Lys Asp Gly Val Glu Leu Thr Asp Gly			14894
4930	4935	4940	
cgg cac cat cac atc gac cag ctt ggg gat ggc acc tgc tct ctg ctg Arg His His His Ile Asp Gln Leu Gly Asp Gly Thr Cys Ser Leu Leu			14942
4945	4950	4955	
atc gct ggc ctg gac cgt gct gat gct ggc tgc tac acc tgt cag gtg Ile Ala Gly Leu Asp Arg Ala Asp Ala Gly Cys Tyr Thr Cys Gln Val			14990
4960	4965	4970	
agc aac aag ttt ggc cag gtg acc cac agt gcc tgt gtg gtc agt Ser Asn Lys Phe Gly Gln Val Thr His Ser Ala Cys Val Val Val Ser			15038
4975	4980	4985	

ggg tca gag agt gaa gcc gag agc tcc tct ggg ggt gag ctg gac gat Gly Ser Glu Ser Glu Ala Glu Ser Ser Ser Gly Gly Glu Leu Asp Asp 4990 4995 5000 5005	15086
gcc ttc cgc cgg gct gcc cgt cgg ctg cac cgg ctc ttc cgc acc aaa Ala Phe Arg Arg Ala Ala Arg Arg Leu His Arg Leu Phe Arg Thr Lys 5010 5015 5020	15134
agt ccg gct gaa gtt tca gat gag gag ctc ttc ctg agt gca gac gag Ser Pro Ala Glu Val Ser Asp Glu Glu Leu Phe Leu Ser Ala Asp Glu 5025 5030 5035	15182
ggc cct gca gag cca gag gag ccc gcg gac tgg cag aca tac cgc gaa Gly Pro Ala Glu Pro Glu Glu Pro Ala Asp Trp Gln Thr Tyr Arg Glu 5040 5045 5050	15230
gat gag cat ttc atc tgc atc cgt ttt gag gcg ctc act gag gcc cgc Asp Glu His Phe Ile Cys Ile Arg Phe Glu Ala Leu Thr Glu Ala Arg 5055 5060 5065	15278
cag gcg gta act cgc ttc cag gag atg ttt gcc aca ctg ggc att ggg Gln Ala Val Thr Arg Phe Gln Glu Met Phe Ala Thr Leu Gly Ile Gly 5070 5075 5080 5085	15326
gtg gag atc aag ctg gtg gaa cag ggg cct cgg agg gta gag atg tgc Val Glu Ile Lys Leu Val Glu Gln Gly Pro Arg Arg Val Glu Met Cys 5090 5095 5100	15374
atc agc aaa gag act cct gcc cct gtg gtg cct cca gag cca ttg ccc Ile Ser Lys Glu Thr Pro Ala Pro Val Val Pro Pro Glu Pro Leu Pro 5105 5110 5115	15422
agc cta ctg act tct gac gct gcc cca gtg ttc ctg act gag ttg cag Ser Leu Leu Thr Ser Asp Ala Ala Pro Val Phe Leu Thr Glu Leu Gln 5120 5125 5130	15470
aac caa gaa gtg cag gat ggg tat cct gtg agc ttt gac tgc gtg gtg Asn Gln Glu Val Gln Asp Gly Tyr Pro Val Ser Phe Asp Cys Val Val 5135 5140 5145	15518
aca ggt cag ccc atg ccc agt gtg cgc tgg ttc aag gat ggg aag ttg Thr Gly Gln Pro Met Pro Ser Val Arg Trp Phe Lys Asp Gly Lys Leu 5150 5155 5160 5165	15566
ttg gag gag gat gat cac tac atg att aat gaa gac caa cag ggt ggc Leu Glu Glu Asp Asp His Tyr Met Ile Asn Glu Asp Gln Gln Gly Gly 5170 5175 5180	15614
cat cag ctc atc atc aca gcc gtg gtg cca gca gac atg ggc gtc tac His Gln Leu Ile Ile Thr Ala Val Val Pro Ala Asp Met Gly Val Tyr 5185 5190 5195	15662
cgc tgc ctg gcc gag aac agc atg ggt gtc tcc tcc acc aag gct gag Arg Cys Leu Ala Glu Asn Ser Met Gly Val Ser Ser Thr Lys Ala Glu 5200 5205 5210	15710
ctc cgt gtg gac ttg aca agc aca gac tat gac act gca gca gat gcc Leu Arg Val Asp Leu Thr Ser Thr Asp Tyr Asp Thr Ala Ala Asp Ala 5215 5220 5225	15758

acg gag tcc tca tcc tac ttc agt gcc caa ggc tac ctg tcc agc cgg Thr Glu Ser Ser Ser Tyr Phe Ser Ala Gln Gly Tyr Leu Ser Ser Arg 5230 5235 5240 5245	15806
gag cag gag gga aca gag tcc acc act gat gag ggc cag ctg ccc cag Glu Gln Glu Gly Thr Glu Ser Thr Thr Asp Glu Gly Gln Leu Pro Gln 5250 5255 5260	15854
gtg gtg gag gag ctg aga gac ctc cag gtg gcc cct ggc aca cgc ctg Val Val Glu Glu Leu Arg Asp Leu Gln Val Ala Pro Gly Thr Arg Leu 5265 5270 5275	15902
gcc aag ttc cag ctc aag gtg aaa ggc tac cct gct ccc aga tta tac Ala Lys Phe Gln Leu Lys Val Lys Gly Tyr Pro Ala Pro Arg Leu Tyr 5280 5285 5290	15950
tgg ttc aaa gat ggc cag ccc ctg acc gca tct gcc cac atc cgc atg Trp Phe Lys Asp Gly Gln Pro Leu Thr Ala Ser Ala His Ile Arg Met 5295 5300 5305	15998
act ggc aag aag atc ctg cac acc ctg gag atc atc tcc gtc acc cgg Thr Gly Lys Lys Ile Leu His Thr Leu Glu Ile Ile Ser Val Thr Arg 5310 5315 5320 5325	16046
gag gac tct ggc cag tat gca gcc tat atc agc aat gcc atg ggt gct Glu Asp Ser Gly Gln Tyr Ala Ala Tyr Ile Ser Asn Ala Met Gly Ala 5330 5335 5340	16094
gcc tac tcg tct gcc cgg ctg ctg gtt cga ggc cct gat gag cca gaa Ala Tyr Ser Ser Ala Arg Leu Leu Val Arg Gly Pro Asp Glu Pro Glu 5345 5350 5355	16142
gag aag cct gca tca gat gtg cat gag cag ctg gtg ccg ccc cga atg Glu Lys Pro Ala Ser Asp Val His Glu Gln Leu Val Pro Pro Arg Met 5360 5365 5370	16190
ctg gag agg ttc acc ccc aag aaa gtg aag aaa ggc tcc agc atc acc Leu Glu Arg Phe Thr Pro Lys Lys Val Lys Lys Gly Ser Ser Ile Thr 5375 5380 5385	16238
ttc tct gtg aag gta gaa gga cgc ccg gtg ccc acc gtg cac tgg ctc Phe Ser Val Lys Val Glu Gly Arg Pro Val Pro Thr Val His Trp Leu 5390 5395 5400 5405	16286
agg gag gag gct gag aga ggc gtg ctg tgg att ggc cct gac aca ccg Arg Glu Glu Ala Glu Arg Gly Val Leu Trp Ile Gly Pro Asp Thr Pro 5410 5415 5420	16334
ggc tac acc gtg gcc agc tct gcg cag cag cac agc ctg gtc ctg ctg Gly Tyr Thr Val Ala Ser Ser Ala Gln Gln His Ser Leu Val Leu Leu 5425 5430 5435	16382
gac gtg ggc cgg cag cac cag ggc acc tac aca tgc att gcc agc aac Asp Val Gly Arg Gln His Gln Gly Thr Tyr Thr Cys Ile Ala Ser Asn 5440 5445 5450	16430
gct gcc ggc cag gcc ctc tgc tcc gcc agc ctg cac gtc tgc ggc ctg Ala Ala Gly Gln Ala Leu Cys Ser Ala Ser Leu His Val Ser Gly Leu 5455 5460 5465	16478
cct aag gtg gag gag cag gag aaa gtg aag gaa gcg ctg att tcc act	16526

Pro Lys Val Glu Glu Gln Glu Lys Val Lys Glu Ala Leu Ile Ser Thr			
5470	5475	5480	5485
ttc ctg cag ggg acc aca caa gcc atc tca gca cag ggg ttg gaa act			16574
Phe Leu Gln Gly Thr Thr Gln Ala Ile Ser Ala Gln Gly Leu Glu Thr			
5490		5495	5500
gct agt ttt gct gac ctt ggt ggg cag agg aaa gaa gag cct ctg gct			16622
Ala Ser Phe Ala Asp Leu Gly Gly Gln Arg Lys Glu Glu Pro Leu Ala			
5505	5510	5515	
gcc aag gag gcc ctc ggc cac ctg tcc ctc gct gag gtg ggc aca gag			16670
Ala Lys Glu Ala Leu Gly His Leu Ser Leu Ala Glu Val Gly Thr Glu			
5520	5525	5530	
gag ttc ctg cag aaa ctg acc tcc cag atc act gag atg gta tcg gcc			16718
Glu Phe Leu Gln Lys Leu Thr Ser Gln Ile Thr Glu Met Val Ser Ala			
5535	5540	5545	
aag atc acg cag gcc aag ctg cag gtg ccc gga ggt gac agt gat gag			16766
Lys Ile Thr Gln Ala Lys Leu Gln Val Pro Gly Gly Asp Ser Asp Glu			
5550	5555	5560	5565
gac tcc aag aca cca tct gca tcc ccc cgc cat ggc cga tca cgg cca			16814
Asp Ser Lys Thr Pro Ser Ala Ser Pro Arg His Gly Arg Ser Arg Pro			
5570	5575	5580	
tcc tcc agc atc cag gag tct tcc tca gag tca gag gac ggc gat gcc			16862
Ser Ser Ser Ile Gln Glu Ser Ser Ser Glu Ser Glu Asp Gly Asp Ala			
5585	5590	5595	
cga ggc gag atc ttt gac atc tac gtg gtc acc gct gac tac ctg ccc			16910
Arg Gly Ile Phe Asp Ile Tyr Val Val Thr Ala Asp Tyr Leu Pro			
5600	5605	5610	
cta ggg gct gag cag gat gcc atc acg ctg cgg gaa ggc cag tat gtg			16958
Leu Gly Ala Glu Gln Asp Ala Ile Thr Leu Arg Glu Gly Gln Tyr Val			
5615	5620	5625	
gag gtc ctg gat gca gcc cac cca ctg cgc tgg ctt gtc cgc acc aag			17006
Glu Val Leu Asp Ala Ala His Pro Leu Arg Trp Leu Val Arg Thr Lys			
5630	5635	5640	5645
ccc acc aag tcc agc ccc tca cgg cag ggc tgg gtg tca cca gcc tac			17054
Pro Thr Lys Ser Ser Pro Ser Arg Gln Gly Trp Val Ser Pro Ala Tyr			
5650	5655	5660	
ctg gac agg ctc aag ctg tca cct gag tgg ggg gcc gct gag gcc			17102
Leu Asp Arg Arg Leu Lys Leu Ser Pro Glu Trp Gly Ala Ala Glu Ala			
5665	5670	5675	
cct gag ttc cct ggg gag gct gtg tct gaa gac gaa tac aag gca agg			17150
Pro Glu Phe Pro Gly Glu Ala Val Ser Glu Asp Glu Tyr Lys Ala Arg			
5680	5685	5690	
ctg agc tct gtg atc cag gag ctg ctg agt tct gag cag gcc ttc gtg			17198
Leu Ser Ser Val Ile Gln Glu Leu Leu Ser Ser Glu Gln Ala Phe Val			
5695	5700	5705	
gag gag ctg cag ttc ctg cag agc cac cac ctg cag cac ctg gag cgc			17246
Glu Glu Leu Gln Phe Leu Gln Ser His His Leu Gln His Leu Glu Arg			

5710	5715	5720	5725	
tgc ccc cac gtg ccc ata gcc gtg gcc ggc cag aag gca gtc atc ttc Cys Pro His Val Pro Ile Ala Val Ala Gly Gln Lys Ala Val Ile Phe 5730		5735		5740
17294				
cgc aat gtg cggtt gac atc ggc cgc ttc cac agc agc ttc ctg cag gag Arg Asn Val Arg Asp Ile Gly Arg Phe His Ser Ser Phe Leu Gln Glu 5745	5750		5755	
17342				
ttt cag cag tgc gac acg gac gac gtg gcc atg tgc ttc atc aag Leu Gln Gln Cys Asp Thr Asp Asp Val Ala Met Cys Phe Ile Lys 5760	5765		5770	
17390				
aac cag gcg gcc ttt gag cag tac ctg gag ttc ctg gtg ggg cgt gtg Asn Gln Ala Ala Phe Glu Gln Tyr Leu Glu Phe Leu Val Gly Arg Val 5775	5780		5785	
17438				
cag gct gag tcg gtg gtc agc acg gcc atc cag gag ttc tac aag Gln Ala Glu Ser Val Val Val Ser Thr Ala Ile Gln Glu Phe Tyr Lys 5790	5795	5800		5805
17486				
aaa tac gcg gag gag gcc ctg ttg gca ggg gac ccc tct cag ccc ccg Lys Tyr Ala Glu Glu Ala Leu Leu Ala Gly Asp Pro Ser Gln Pro Pro 5810	5815		5820	
17534				
cca cca cct ctg cag cac tac ctg gag cag cca gtg gag cgg gtg cag Pro Pro Pro Leu Gln His Tyr Leu Glu Gln Pro Val Glu Arg Val Gln 5825	5830		5835	
17582				
cgc tac cag gcc ttg ctg aag gag ttg atc cgc aac aag gcg cgg aac Arg Tyr Gln Ala Leu Leu Lys Glu Leu Ile Arg Asn Lys Ala Arg Asn 5840	5845		5850	
17630				
aga cag aac tgc gcg ctg ctg gag cag gcc tat gcc gtg gtg tct gcc Arg Gln Asn Cys Ala Leu Leu Glu Gln Ala Tyr Ala Val Val Ser Ala 5855	5860		5865	
17678				
ctg cca cag cgc gct gag aac aag ctg cac gtg tcc ctc atg gag aac Leu Pro Gln Arg Ala Glu Asn Lys Leu His Val Ser Leu Met Glu Asn 5870	5875	5880		5885
17726				
tac cca ggc acc ctg gag gcc ctg ggc gag ccc atc cgc cag ggc cac Tyr Pro Gly Thr Leu Glu Ala Leu Gly Glu Pro Ile Arg Gln Gly His 5890	5895		5900	
17774				
ttc atc gtg tgg gag ggt gca ccg ggg gcc cgc atg ccc tgg aag ggc Phe Ile Val Trp Glu Gly Ala Pro Gly Ala Arg Met Pro Trp Lys Gly 5905	5910		5915	
17822				
cac aac cgt cac gtg ttc ctc cgc aac cac ctg gta atc tgc aag His Asn Arg His Val Phe Leu Phe Arg Asn His Leu Val Ile Cys Lys 5920	5925		5930	
17870				
ccc cgg cga gac tcc cgc acc gat acc gtc agc tac gtg ttc cgg aac Pro Arg Arg Asp Ser Arg Thr Asp Thr Val Ser Tyr Val Phe Arg Asn 5935	5940		5945	
17918				
atg atg aag ctg agc agc atc gac ctg aac gac cag gtg gag ggg gat Met Met Lys Leu Ser Ser Ile Asp Leu Asn Asp Gln Val Glu Gly Asp 5950	5955	5960		5965
17966				

gac cgc gcc ttc gag gtg tgg cag gag cggtcg gac tcg gtgcgc aag Asp Arg Ala Phe Glu Val Trp Gln Glu Arg Glu Asp Ser Val Arg Lys 5970 5975 5980	18014
tac ctg ctg cag gca cgg aca gcc att atc aag agc tcg tgg gtg aag Tyr Leu Leu Gln Ala Arg Thr Ala Ile Ile Lys Ser Ser Trp Val Lys 5985 5990 5995	18062
gag atc tgt ggc atc cag cag cgt ctg gcc ctg cct gtg tgg cgg ccc Glu Ile Cys Gly Ile Gln Gln Arg Leu Ala Leu Pro Val Trp Arg Pro 6000 6005 6010	18110
ccg gac ttt gaa gag gag ctg gcc gac tgc aca gcc gag ctg ggt gag Pro Asp Phe Glu Glu Leu Ala Asp Cys Thr Ala Glu Leu Gly Glu 6015 6020 6025	18158
aca gtc aag ctg gcc tgc cgc gtg acg ggc aca ccc aag cct gtc atc Thr Val Lys Leu Ala Cys Arg Val Thr Gly Thr Pro Lys Pro Val Ile 6030 6035 6040 6045	18206
agc tgg tac aaa gat ggg aaa gca gtg cag gtg gac ccc cac cac atc Ser Trp Tyr Lys Asp Gly Lys Ala Val Gln Val Asp Pro His His Ile 6050 6055 6060	18254
ctc att gaa gac cct gat ggc tcg tgt gca ctc atc ctg gac agc ctg Leu Ile Glu Asp Pro Asp Gly Ser Cys Ala Leu Ile Leu Asp Ser Leu 6065 6070 6075	18302
acc ggt gtg gac tct ggc cag tac atg tgc ttc gcg gcc agc gcc gct Thr Gly Val Asp Ser Gly Gln Tyr Met Cys Phe Ala Ala Ser Ala Ala 6080 6085 6090	18350
ggc aac tgc agt acc ctg ggc aag atc ctg gtg caa gtc cca cca cgg Gly Asn Cys Ser Thr Leu Gly Lys Ile Leu Val Gln Val Pro Pro Arg 6095 6100 6105	18398
ttc gtg aac aag gtc cgg gcc tca ccc ttt gtg gag gga gag gac gcc Phe Val Asn Lys Val Arg Ala Ser Pro Phe Val Glu Gly Glu Asp Ala 6110 6115 6120 6125	18446
cag ttc acc tgc acc atc gaa ggc gcc ccgtac ccgtac atc agg tgg Gln Phe Thr Cys Thr Ile Glu Gly Ala Pro Tyr Pro Gln Ile Arg Trp 6130 6135 6140	18494
tac aag gac ggg gcc ctg ctg acc act ggc aac aag ttc cag aca ctg Tyr Lys Asp Gly Ala Leu Leu Thr Thr Gly Asn Lys Phe Gln Thr Leu 6145 6150 6155	18542
agt gag cct cgc agc ggc ctg cta gtg ctg gtg atc cgg gcg gcc agc Ser Glu Pro Arg Ser Gly Leu Leu Val Leu Val Ile Arg Ala Ala Ser 6160 6165 6170	18590
aag gag gac ctg ggg ctc tac gag tgt gag ctg gtg aac cgg ctg ggc Lys Glu Asp Leu Gly Leu Tyr Glu Cys Glu Leu Val Asn Arg Leu Gly 6175 6180 6185	18638
tcc gcg cgg gct agt gcg gag ctg cgc att cag agc ccc atg ctg cag Ser Ala Arg Ala Ser Ala Glu Leu Arg Ile Gln Ser Pro Met Leu Gln 6190 6195 6200 6205	18686

gcc cag gag cag tgt cac agg gag cag ctc gtg gct gca gtg gaa gac Ala Gln Glu Gln Cys His Arg Glu Gln Leu Val Ala Ala Val Glu Asp 6210	6215	6220	18734	
acc acc ctg gag cga gcg gac cag gag gtc aca tct gtc ctg aag aga Thr Thr Leu Glu Arg Ala Asp Gln Glu Val Thr Ser Val Leu Lys Arg 6225	6230	6235	18782	
ctg ctg ggc ccc aag gcg cca ggc ccc tcc aca ggg gac ctc act ggc Leu Leu Gly Pro Lys Ala Pro Gly Pro Ser Thr Gly Asp Leu Thr Gly 6240	6245	6250	18830	
cct ggc ccc tgc ccc agg ggg gca ccc gca ctc cag gaa acc ggc tcc Pro Gly Pro Cys Pro Arg Gly Ala Pro Ala Leu Gln Glu Thr Gly Ser 6255	6260	6265	18878	
cag ccc cca gtc acc gga act tcg gag gca cct gcc gtg ccc ccg agg Gln Pro Pro Val Thr Gly Thr Ser Glu Ala Pro Ala Val Pro Pro Arg 6270	6275	6280	6285	18926
gtg cca cag ccc ctc cac gaa ggc cca gag cag gag ccg gag gcc Val Pro Gln Pro Leu Leu His Glu Gly Pro Glu Gln Glu Pro Glu Ala 6290	6295	6300	18974	
att gcc aga gcc cag gaa tgg act gtg ccc att cggtt atg gag ggt gca Ile Ala Arg Ala Gln Glu Trp Thr Val Pro Ile Arg Met Glu Gly Ala 6305	6310	6315	19022	
gcc tgg ccc ggg gca ggc aca ggg gag ctg ctc tgg gac gtc cac agc Ala Trp Pro Gly Ala Gly Thr Gly Glu Leu Leu Trp Asp Val His Ser 6320	6325	6330	19070	
cac gtg gtc aga gag acc aca cag agg acc tac aca tac cag gcc atc His Val Val Arg Glu Thr Thr Gln Arg Thr Tyr Thr Tyr Gln Ala Ile 6335	6340	6345	19118	
gac acg cac acc gca cgg ccc cca tcc atg cag gta acc atc gag gat Asp Thr His Thr Ala Arg Pro Pro Ser Met Gln Val Thr Ile Glu Asp 6350	6355	6360	6365	19166
gtg cag gca cag aca ggc gga acg gcc caa ttc gag gct atc att gag Val Gln Ala Gln Thr Gly Gly Thr Ala Gln Phe Glu Ala Ile Ile Glu 6370	6375	6380	19214	
ggc gac cca cag ccc tcg gtg acc tgg tac aag gac agc gtc cag ctg Gly Asp Pro Gln Pro Ser Val Thr Trp Tyr Lys Asp Ser Val Gln Leu 6385	6390	6395	19262	
gtg gac agc acc cgg ctt agc cag cag caa gaa ggc acc aca tac tcc Val Asp Ser Thr Arg Leu Ser Gln Gln Glu Gly Thr Thr Tyr Ser 6400	6405	6410	19310	
ctg gtg ctg agg cat gtg gcc tcg aag gat gcc ggc gtt tac acc tgc Leu Val Leu Arg His Val Ala Ser Lys Asp Ala Gly Val Tyr Thr Cys 6415	6420	6425	19358	
ctg gcc caa aac act ggt ggc cag gtg ctc tgc aag gca gag ctg ctg Leu Ala Gln Asn Thr Gly Gly Gln Val Leu Cys Lys Ala Glu Leu Leu 6430	6435	6440	6445	19406
gtg ctt ggg ggg gac aat gag ccg gac tca gag aag caa agc cac cgg			19454	

Val	Leu	Gly	Gly	Asp	Asn	Glu	Pro	Asp	Ser	Glu	Lys	Gln	Ser	His	Arg	
							6450			6455					6460	
agg	aag	ctg	cac	tcc	ttc	tat	gag	gtc	aag	gag	gag	att	gga	agg	ggc	19502
Arg	Lys	Leu	His	Ser	Phe	Tyr	Glu	Val	Lys	Glu	Glu	Ile	Gly	Arg	Gly	
							6465			6470					6475	
gtg	ttt	ggc	ttc	gta	aaa	aga	gtg	cag	cac	aaa	gga	aac	aag	atc	ttg	19550
Val	Phe	Gly	Phe	Val	Lys	Arg	Val	Gln	His	Lys	Gly	Asn	Lys	Ile	Leu	
							6480			6485					6490	
tgc	gct	gcc	aag	ttc	atc	ccc	cta	cg	agc	aga	act	cg	gcc	cag	gca	19598
Cys	Ala	Ala	Lys	Phe	Ile	Pro	Leu	Arg	Ser	Arg	Thr	Arg	Ala	Gln	Ala	
							6495			6500					6505	
tac	agg	gag	cga	gac	atc	ctg	gcc	g	ctg	agc	cac	ccg	ctg	gtc	acg	19646
Tyr	Arg	Glu	Arg	Asp	Ile	Leu	Ala	Ala	Leu	Ser	His	Pro	Leu	Val	Thr	
							6510			6515					6520	
ggg	ctg	ctg	gac	cag	ttt	gag	acc	cgc	aag	acc	ctc	atc	ctc	atc	ctg	19694
Gly	Leu	Leu	Asp	Gln	Phe	Glu	Thr	Arg	Lys	Thr	Leu	Ile	Leu	Ile	Leu	
							6530			6535					6540	
gag	ctg	tgc	tca	tcc	gag	gag	ctg	ctg	gac	cgc	ctg	tac	agg	aag	ggc	19742
Glu	Leu	Cys	Ser	Ser	Glu	Glu	Leu	Leu	Asp	Arg	Leu	Tyr	Arg	Lys	Gly	
							6545			6550					6555	
gtg	gtg	acg	gag	gcc	gag	gtc	aag	gtc	tac	atc	cag	cag	ctg	gtg	gag	19790
Val	Val	Thr	Glu	Ala	Glu	Val	Lys	Val	Tyr	Ile	Gln	Gln	Leu	Val	Glu	
							6560			6565					6570	
ggg	ctg	cac	tac	ctg	cac	agc	cat	ggc	gtt	ctc	cac	ctg	gac	ata	aag	19838
Gly	Leu	His	Tyr	Leu	His	Ser	His	Gly	Val	Leu	His	Leu	Asp	Ile	Lys	
							6575			6580					6585	
ccc	tct	aac	atc	ctg	atg	gtg	cat	cct	gcc	cgg	gaa	gac	att	aaa	atc	19886
Pro	Ser	Asn	Ile	Leu	Met	Val	His	Pro	Ala	Arg	Glu	Asp	Ile	Lys	Ile	
							6590			6595					6600	
tgc	gac	ttt	ggc	ttt	gcc	cag	aac	atc	acc	cca	gca	gag	ctg	cag	ttc	19934
Cys	Asp	Phe	Gly	Phe	Ala	Gln	Asn	Ile	Thr	Pro	Ala	Glu	Leu	Gln	Phe	
							6610			6615					6620	
agc	cag	tac	ggc	tcc	cct	gag	ttc	gtc	tcc	ccc	gag	atc	atc	cag	cag	19982
Ser	Gln	Tyr	Gly	Ser	Pro	Glu	Phe	Val	Ser	Pro	Glu	Ile	Ile	Gln	Gln	
							6625			6630					6635	
aac	cct	gtg	agc	gaa	gcc	tcc	gac	att	tgg	gcc	atg	ggt	gtc	atc	tcc	20030
Asn	Pro	Val	Ser	Glu	Ala	Ser	Asp	Ile	Trp	Ala	Met	Gly	Val	Ile	Ser	
							6640			6645					6650	
tac	ctc	agc	ctg	acc	tgc	tca	tcc	cca	ttt	gcc	ggc	gag	agt	gac	cgt	20078
Tyr	Leu	Ser	Leu	Thr	Cys	Ser	Ser	Pro	Phe	Ala	Gly	Glu	Ser	Asp	Arg	
							6655			6660					6665	
gcc	acc	ctc	ctg	aac	gtc	ctg	gag	ggg	cgc	gtg	tca	tgg	agc	agc	ccc	20126
Ala	Thr	Leu	Leu	Asn	Val	Leu	Glu	Gly	Arg	Val	Ser	Trp	Ser	Ser	Pro	
							6670			6675					6680	
atg	gct	gcc	cac	ctc	agc	gaa	gac	gcc	aaa	gac	ttc	atc	aag	gct	acg	20174
Met	Ala	Ala	His	Leu	Ser	Glu	Asp	Ala	Lys	Asp	Phe	Ile	Lys	Ala	Thr	

6690	6695	6700		
ctg cag aga gcc cct cag gcc cg ^g cct agt g ^c g ^c c ^a g ^t g ^c t ^c t ^c Leu Gln Arg Ala Pro Gln Ala Arg Pro Ser Ala Ala Gln Cys Leu Ser 6705	6710	6715	20222	
cac ccc tgg ttc ctg aaa tcc atg cct g ^c g ^a g ^a g ^g g ^c c ^a t ^c atc His Pro Trp Phe Leu Lys Ser Met Pro Ala Glu Glu Ala His Phe Ile 6720	6725	6730	20270	
aac acc aag cag ctc aag ttc ctc ctg g ^c c ^g a ^t c ^g t ^g c ^a g ^t c ^g Asn Thr Lys Gln Leu Lys Phe Leu Leu Ala Arg Ser Arg Trp Gln Arg 6735	6740	6745	20318	
tcc ctg atg agc tac aag tcc atc ctg gt ^g atg c ^g t ^c atc c ^c t ^g Ser Leu Met Ser Tyr Lys Ser Ile Leu Val Met Arg Ser Ile Pro Glu 6750	6755	6760	6765	20366
ctg ctg c ^g g ^c cca ccc gac agc ccc tcc ctc g ^g c ^a g ^t g ^c c ^g c ^a Leu Leu Arg Gly Pro Pro Asp Ser Pro Ser Leu Gly Val Ala Arg His 6770	6775	6780	20414	
ctc tgc agg gac act ggt g ^g c ^c tcc tcc agt tcc tcc tcc tcc tct gac Leu Cys Arg Asp Thr Gly Gly Ser Ser Ser Ser Ser Ser Ser Asp 6785	6790	6795	20462	
aac gag ctc gcc cca ttt gcc c ^g g ^c t ^a t ^c g ^c c ^a ccc tcc cc ^g Asn Glu Leu Ala Pro Phe Ala Arg Ala Lys Ser Leu Pro Pro Ser Pro 6800	6805	6810	20510	
gt ^g aca cac tca cca ctg ctg cac ccc c ^g g ^g t ^t c ^t g ^c c ^g ccc tc ^g Val Thr His Ser Pro Leu Leu His Pro Arg Gly Phe Leu Arg Pro Ser 6815	6820	6825	20558	
gcc agc ctg cct gag gaa g ^c g ^a g ^g g ^c a ^t g ^g c ^g t ^c acc g ^a g ^c Ala Ser Leu Pro Glu Glu Ala Glu Ala Ser Glu Arg Ser Thr Glu Ala 6830	6835	6840	6845	20606
cca gct ccg cct gca tct ccc gag ggt g ^c g ^g g ^g c ^a cc ^g g ^c g ^c c ^a Pro Ala Pro Pro Ala Ser Pro Glu Gly Ala Gly Pro Pro Ala Ala Gln 6850	6855	6860	20654	
ggc tgc gt ^g ccc c ^g cac agc gtc atc c ^g a ^c ctg ttc tac cac c ^a Gly Cys Val Pro Arg His Ser Val Ile Arg Ser Leu Phe Tyr His Gln 6865	6870	6875	20702	
g ^c g ^g t ^g g ^a g ^c c ^t g ^a g ^c g ^g g ^c ctg g ^c c ^g g ^g a ^t g ^g c ^g Ala Gly Glu Ser Pro Glu His Gly Ala Leu Ala Pro Gly Ser Arg Arg 6880	6885	6890	20750	
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gag gag gcc g ^c agg g ^a g ^a g ^c a ^g g ^c acc c ^t c ^t g ^c aaa g ^c c ^c Glu Glu Ala Ala Arg Glu Glu Gln Ala Thr Leu Leu Ala Lys Ala Pro 6930	6935	6940	20894	

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cct ggc cac agc cac tcc ctg gaa cat gac tct ccg agc acc ccc cgc Pro Gly His Ser His Ser Leu Glu His Asp Ser Pro Ser Thr Pro Arg	6960	6965	6970	20990	
ccc tcc tcg gag gcc tgc ggt gag gca cag cga ctg cct tca gcc ccc Pro Ser Ser Glu Ala Cys Gly Glu Ala Gln Arg Leu Pro Ser Ala Pro	6975	6980	6985	21038	
tcc ggg ggg gcc cct atc agg gac atg ggg cac cct cag ggc tcc aag Ser Gly Gly Ala Pro Ile Arg Asp Met Gly His Pro Gln Gly Ser Lys	6990	6995	7000	7005	21086
cag ctt cca tcc act ggt ggc cac cca ggc act gct cag cca gag agg Gln Leu Pro Ser Thr Gly Gly His Pro Gly Thr Ala Gln Pro Glu Arg	7010	7015	7020	21134	
cca tcc ccg gac agc cct tgg ggg cag cca gcc cct ttc tgc cac ccc Pro Ser Pro Asp Ser Pro Trp Gly Gln Pro Ala Pro Phe Cys His Pro	7025	7030	7035	21182	
aag cag ggt tct gcc ccc cag gag ggc tgc agc ccc cac cca gca gtt Lys Gln Gly Ser Ala Pro Gln Glu Gly Cys Ser Pro His Pro Ala Val	7040	7045	7050	21230	
gcc cca tgc cct cct ggc tcc ttc cct cca gga tct tgc aaa gag gcc Ala Pro Cys Pro Pro Gly Ser Phe Pro Pro Gly Ser Cys Lys Glu Ala	7055	7060	7065	21278	
ccc tta gta ccc tca agc ccc ttc ttg gga cag ccc cag gca ccc cct Pro Leu Val Pro Ser Ser Pro Phe Leu Gly Gln Pro Gln Ala Pro Pro	7070	7075	7080	7085	21326
gcc cct gcc aaa gca agc ccc cca ttg gac tct aag atg ggg cct gga Ala Pro Ala Lys Ala Ser Pro Pro Leu Asp Ser Lys Met Gly Pro Gly	7090	7095	7100	21374	
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cag cggtt cct cag gaa cag ggc acc atg cgc aag ttc tcc ctg ggt ggt Gln Arg Pro Gln Glu Gln Ala Thr Met Arg Lys Phe Ser Leu Gly Gly	7170	7175	7180	21614	

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gct gag tcc cag tcg gag gag cag gag gcc agg gct gag agc cca Ala Glu Ser Gln Ser Glu Glu Gln Glu Ala Arg Ala Glu Ser Pro 7230 7235 7240 7245	21806
ctg ccc cag gtc agt gca agg cct gtg cct gag gtc ggc agg gct ccc Leu Pro Gln Val Ser Ala Arg Pro Val Pro Glu Val Gly Arg Ala Pro 7250 7255 7260	21854
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Val Glu His Ile Ser Arg Ile Leu Lys Gly Arg Pro Glu Gly Leu Glu			
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7505	7510	7515	
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tac acc tgc agc gtg agc aat gcg ctg ggg aca gtg acc acc acg ggc	Tyr Thr Cys Ser Val Ser Asn Ala Leu Gly Thr Val Thr Thr Thr Gly	22718	
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7585	7590	7595	
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7600	7605	7610	
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ctg gga ggg ccc agc cac ctg gcc tct gag gag gag agc cag ggg cgg	Leu Gly Gly Pro Ser His Leu Ala Ser Glu Glu Glu Ser Gln Gly Arg	23054	
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ctc ctg gag ggc cag ggg gct gtt cca cag aca gac atc tgg gcc atc Leu Leu Glu Gly Gln Gly Ala Val Pro Gln Thr Asp Ile Trp Ala Ile 7840	7845	7850	23630	
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tgc ctg cag tgc ccg tgg cta aca gag gag ggc ccg gcc tgt tcg cgg	23870		
Cys Leu Gln Cys Pro Trp Leu Thr Glu Glu Gly Pro Ala Cys Ser Arg			
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ccc gcg ccc gtg acc ttc cct acc gcg ccg ctg cgc gtc ttc gtg cgc	23918		
Pro Ala Pro Val Thr Phe Pro Thr Ala Arg Leu Arg Val Phe Val Arg			
7935	7940	7945	
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Asn Arg Glu Lys Arg Arg Ala Leu Leu Tyr Lys Arg His Asn Leu Ala			
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Gln Val Arg *			

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Lys Ala Phe Val Val Ser Val Gly Lys Asp Ala Thr Leu Ser Cys Gln	
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Ile Val Gly Asn Pro Thr Pro Gln Val Ser Trp Glu Lys Asp Gln Gln	
35 40 45	
Pro Val Thr Ala Gly Ala Arg Phe Arg Leu Ala Gln Asp Gly Asp Leu	
50 55 60	
Tyr Arg Leu Thr Ile Leu Asp Leu Ala Leu Gly Asp Ser Gly Gln Tyr	
65 70 75 80	
Val Cys Arg Ala Arg Asn Ala Ile Gly Glu Ala Phe Ala Ala Val Gly	
85 90 95	
Leu Gln Val Asp Ala Glu Ala Ala Cys Ala Glu Gln Ala Pro His Phe	
100 105 110	
Leu Leu Arg Pro Thr Ser Ile Arg Val Arg Glu Gly Ser Glu Ala Thr	
115 120 125	
Phe Arg Cys Arg Val Gly Gly Ser Pro Arg Pro Ala Val Ser Trp Ser	
130 135 140	
Lys Asp Gly Arg Arg Leu Gly Glu Pro Asp Gly Pro Arg Val Arg Val	
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Glu Glu Leu Gly Glu Ala Ser Ala Leu Arg Ile Arg Ala Ala Arg Pro	
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Arg Asp Gly Gly Thr Tyr Glu Val Arg Ala Glu Asn Pro Leu Gly Ala	
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Ala Ser Ala Ala Ala Leu Val Val Asp Ser Asp Ala Ala Asp Thr	
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Ala Ser Arg Pro Gly Thr Ser Thr Ala Ala Leu Leu Ala His Leu Gln	
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Arg Arg Arg Glu Ala Met Arg Ala Glu Gly Ala Pro Ala Ser Pro Pro	
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Ser Thr Gly Thr Arg Thr Cys Thr Val Thr Glu Gly Lys His Ala Arg	
245 250 255	
Leu Ser Cys Tyr Val Thr Gly Glu Pro Lys Pro Glu Thr Val Trp Lys	
260 265 270	
Lys Asp Gly Gln Leu Val Thr Glu Gly Arg Arg His Val Val Tyr Glu	

275	280	285
Asp Ala Gln Glu Asn Phe Val	Leu Lys Ile Leu Phe Cys Lys Gln Ser	
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Asp Arg Gly Leu Tyr Thr Cys Thr Ala Ser Asn Leu Val Gly Gln Thr		
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Tyr Ser Ser Val Leu Val Val Val Arg Glu Pro Ala Val Pro Phe Lys		
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Lys Arg Leu Gln Asp Leu Glu Val Arg Glu Lys Glu Ser Ala Thr Phe		
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Leu Cys Glu Val Pro Gln Pro Ser Thr Glu Ala Ala Trp Phe Lys Glu		
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Glu Thr Arg Leu Trp Ala Ser Ala Lys Tyr Gly Ile Glu Glu Glu Gly		
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Thr Glu Arg Arg Leu Thr Val Arg Asn Val Ser Ala Asp Asp Asp Ala		
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Val Tyr Ile Cys Glu Thr Pro Glu Gly Ser Arg Thr Val Ala Glu Leu		
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Ala Val Gln Gly Asn Leu Leu Arg Lys Leu Pro Arg Lys Thr Ala Val		
420	425	430
Arg Val Gly Asp Thr Ala Met Phe Cys Val Glu Leu Ala Val Pro Val		
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Gly Pro Val His Trp Leu Arg Asn Gln Glu Glu Val Val Ala Gly Gly		
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Arg Val Ala Ile Ser Ala Glu Gly Thr Arg His Thr Leu Thr Ile Ser		
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Gln Cys Cys Leu Glu Asp Val Gly Gln Val Ala Phe Met Ala Gly Asp		
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Cys Gln Thr Ser Thr Arg Phe Cys Val Ser Ala Pro Arg Lys Pro Pro		
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Leu Gln Pro Pro Val Asp Pro Val Val Lys Ala Arg Met Glu Ser Ser		
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Val Ile Leu Ser Trp Ser Pro Pro Pro His Gly Glu Arg Pro Val Thr		
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Ile Asp Gly Tyr Leu Val Glu Lys Lys Leu Gly Thr Tyr Thr Trp		
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Ile Arg Cys His Glu Ala Glu Trp Val Ala Thr Pro Glu Leu Thr Val		
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Leu Ala Pro Lys Leu Ala Val Arg Thr Pro Leu Lys Ala Val Gln Ala		
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Ala Gly Glu Trp Phe Leu Asp Gly Gln Ala Leu Lys Ala Ser Ser Val		
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Tyr Glu Ile His Cys Asp Arg Thr Arg His Thr Leu Thr Ile Arg Glu		
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Val Pro Ala Ser Leu His Gly Ala Gln Leu Lys Phe Val Ala Asn Gly		
675	680	685
Ile Glu Ser Ser Ile Arg Met Glu Val Arg Ala Ala Pro Gly Leu Thr		
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Ala Asn Lys Pro Pro Ala Ala Ala Arg Glu Val Leu Ala Arg Leu		
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His Glu Glu Ala Gln Leu Leu Ala Glu Leu Ser Asp Gln Ala Ala Ala		
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Val Thr Trp Leu Lys Asp Gly Arg Thr Leu Ser Pro Gly Pro Lys Tyr		
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Glu Val Gln Ala Ser Ala Gly Arg Arg Val Leu Leu Val Arg Asp Val		
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 Ile Ala Tyr Gln Leu Ser Val Gln Gly Leu Ala Arg Phe Leu His Lys
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 Phe Glu Cys Glu Thr Ser Glu Ala His Val His Val His Trp Tyr Lys
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 835 840 845
 Val Gly Thr Arg His Arg Leu Val Ala Ala Thr Val Thr Arg Gln Asp
 850 855 860
 Glu Gly Thr Tyr Ser Cys Arg Val Gly Glu Asp Ser Val Asp Phe Arg
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 Leu Arg Val Ser Glu Pro Lys Val Val Phe Ala Lys Glu Gln Leu Ala
 885 890 895
 Arg Arg Lys Leu Gln Ala Glu Ala Gly Ala Ser Ala Thr Leu Ser Cys
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 Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys
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 Lys Leu Ser Ser Ser Lys Val Cys Met Glu Ala Thr Gly Cys Thr
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 Arg Arg Leu Val Val Gln Gln Ala Gly Gln Ala Asp Ala Gly Glu Tyr
 945 950 955 960
 Ser Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe His Leu Asp Val Lys
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 Glu Pro Lys Val Val Phe Ala Lys Asp Gln Val Ala His Ser Glu Val
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 Gln Ala Glu Ala Gly Ala Asn Ala Thr Leu Ser Cys Glu Val Ala Gln
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 Arg Gly Gln Arg Val Ser Phe Arg Leu His Ile Thr Glu Pro Lys Met
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Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys		1280
1285	1290	1295
Lys Leu Ser Ser Ser Lys Val Arg Ile Glu Ala Ala Gly Cys Met		
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Arg Gln Leu Val Val Gln Gln Ala Gly Gln Ala Asp Ala Gly Glu Tyr		
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Glu Pro Lys Ala Val Phe Ala Lys Glu Gln Leu Ala His Arg Lys Val		
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Ala Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys Lys Leu Ser Ser		
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Val Gln Gln Ala Cys Gln Ala Asp Thr Gly Glu Tyr Ser Cys Glu Ala		
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Val Met Trp Tyr Lys Asp Gly Lys Lys Leu Ser Phe Ser Ser Lys Val		
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Gly Gln Ala Asp Ala Gly Glu Tyr Ser Cys Glu Ala Gly Ser Gln Arg		
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Thr Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr		
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Leu His Val Ala Glu Pro Lys Val Val Phe Ala Lys Glu Gln Pro Ala		
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His Arg Glu Val Gln Ala Glu Ala Gly Ala Ser Ala Thr Leu Ser Cys		
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Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys		
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Lys Leu Ser Ser Ser Lys Val Arg Val Glu Ala Val Gly Cys Thr		
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1680		
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1685	1690	1695
Ser Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe Arg Leu His Val Ala		
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Glu Leu Glu Pro Gln Ile Ser Glu Arg Pro Cys Arg Arg Glu Pro Leu		
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Val Val Lys Glu His Glu Asp Ile Ile Leu Thr Ala Thr Leu Ala Thr		
1730	1735	1740

Pro Ser Ala Ala Thr Val Thr Trp Leu Lys Asp Gly Val Glu Ile Arg
 1745 1750 1755 1760
 Arg Ser Lys Arg His Glu Thr Ala Ser Gln Gly Asp Thr His Thr Leu
 1765 1770 1775
 Thr Val His Gly Ala Gln Val Leu Asp Ser Ala Ile Tyr Ser Cys Arg
 1780 1785 1790
 Val Gly Ala Glu Gly Gln Asp Phe Pro Val Gln Val Glu Glu Val Ala
 1795 1800 1805
 Ala Lys Phe Cys Arg Leu Leu Glu Pro Val Cys Gly Glu Leu Gly Gly
 1810 1815 1820
 Thr Val Thr Leu Ala Cys Glu Leu Ser Pro Ala Cys Ala Glu Val Val
 1825 1830 1835 1840
 Trp Arg Cys Gly Asn Thr Gln Pro Arg Val Gly Lys Arg Phe Gln Met
 1845 1850 1855
 Val Ala Glu Gly Pro Val Arg Ser Leu Thr Val Leu Gly Leu Arg Ala
 1860 1865 1870
 Glu Asp Ala Gly Glu Tyr Val Cys Glu Ser Arg Asp Asp His Thr Ser
 1875 1880 1885
 Ala Gln Leu Thr Val Ser Val Pro Arg Val Val Lys Phe Met Ser Gly
 1890 1895 1900
 Leu Ser Thr Val Val Ala Glu Glu Gly Glu Ala Thr Phe Gln Cys
 1905 1910 1915 1920
 Val Val Ser Pro Ser Asp Val Ala Val Val Trp Phe Arg Asp Gly Ala
 1925 1930 1935
 Leu Leu Gln Pro Ser Glu Lys Phe Ala Ile Ser Gln Ser Gly Ala Ser
 1940 1945 1950
 His Ser Leu Thr Ile Ser Asp Leu Val Leu Glu Asp Ala Gly Gln Ile
 1955 1960 1965
 Thr Val Glu Ala Glu Gly Ala Ser Ser Ser Ala Ala Leu Arg Val Arg
 1970 1975 1980
 Glu Ala Pro Val Leu Phe Lys Lys Leu Glu Pro Gln Thr Val Glu
 1985 1990 1995 2000
 Glu Arg Ser Ser Val Thr Leu Glu Val Glu Leu Thr Arg Pro Trp Pro
 2005 2010 2015
 Glu Leu Arg Trp Thr Arg Asn Ala Thr Ala Leu Ala Pro Gly Lys Asn
 2020 2025 2030
 Val Glu Ile His Ala Glu Gly Ala Arg His Arg Leu Val Leu His Asn
 2035 2040 2045
 Val Gly Phe Ala Asp Arg Gly Phe Phe Gly Cys Glu Thr Pro Asp Asp
 2050 2055 2060
 Lys Thr Gln Ala Lys Leu Thr Val Glu Met Arg Gln Val Arg Leu Val
 2065 2070 2075 2080
 Arg Gly Leu Gln Ala Val Glu Ala Arg Glu Gln Gly Thr Ala Thr Met
 2085 2090 2095
 Glu Val Gln Leu Ser His Ala Asp Val Asp Gly Ser Trp Thr Arg Asp
 2100 2105 2110
 Gly Leu Arg Phe Gln Gln Gly Pro Thr Cys His Leu Ala Val Arg Gly
 2115 2120 2125
 Pro Met His Thr Leu Thr Leu Ser Gly Leu Arg Pro Glu Asp Ser Gly
 2130 2135 2140
 Leu Met Val Phe Lys Ala Glu Gly Val His Thr Ser Ala Arg Leu Val
 2145 2150 2155 2160
 Val Thr Glu Leu Pro Val Ser Phe Ser Arg Pro Leu Gln Asp Val Val
 2165 2170 2175
 Thr Thr Glu Lys Glu Lys Val Thr Leu Glu Cys Glu Leu Ser Arg Pro
 2180 2185 2190
 Asn Val Asp Val Arg Trp Leu Lys Asp Gly Val Glu Leu Arg Ala Gly
 2195 2200 2205
 Lys Thr Met Ala Ile Ala Ala Gln Gly Ala Cys Arg Ser Leu Thr Ile
 2210 2215 2220
 Tyr Arg Cys Glu Phe Ala Asp Gln Gly Val Tyr Val Cys Asp Ala His

2225	2230	2235	2240
Asp Ala Gln Ser Ser Ala Ser Val Lys Val Gln Gly Arg Thr Tyr Thr			
2245	2250	2255	
Leu Ile Tyr Arg Arg Val Leu Ala Glu Asp Ala Gly Glu Ile Gln Phe			
2260	2265	2270	
Val Ala Glu Asn Ala Glu Ser Arg Ala Gln Leu Arg Val Lys Glu Leu			
2275	2280	2285	
Pro Val Thr Leu Val Arg Pro Leu Arg Asp Lys Ile Ala Met Glu Lys			
2290	2295	2300	
His Arg Gly Val Leu Glu Cys Gln Val Ser Arg Ala Ser Ala Gln Val			
2305	2310	2315	2320
Arg Trp Phe Lys Gly Ser Gln Glu Leu Gln Pro Gly Pro Lys Tyr Glu			
2325	2330	2335	
Leu Val Ser Asp Gly Leu Tyr Arg Lys Leu Ile Ile Ser Asp Val His			
2340	2345	2350	
Ala Glu Asp Glu Asp Thr Tyr Thr Cys Asp Ala Gly Asp Val Lys Thr			
2355	2360	2365	
Ser Ala Gln Phe Phe Val Glu Glu Gln Ser Ile Thr Ile Val Arg Gly			
2370	2375	2380	
Leu Gln Asp Val Thr Val Met Glu Pro Ala Pro Ala Trp Phe Glu Cys			
2385	2390	2395	2400
Glu Thr Ser Ile Pro Ser Val Arg Pro Pro Lys Trp Leu Leu Gly Lys			
2405	2410	2415	
Thr Val Leu Gln Ala Gly Gly Asn Val Gly Leu Glu Gln Glu Gly Thr			
2420	2425	2430	
Val His Arg Leu Met Leu Arg Arg Thr Cys Ser Thr Met Thr Gly Pro			
2435	2440	2445	
Val His Phe Thr Val Gly Lys Ser Arg Ser Ser Ala Arg Leu Val Val			
2450	2455	2460	
Ser Asp Ile Pro Val Val Leu Thr Arg Pro Leu Glu Pro Lys Thr Gly			
2465	2470	2475	2480
Arg Glu Leu Gln Ser Val Val Leu Ser Cys Asp Phe Arg Pro Ala Pro			
2485	2490	2495	
Lys Ala Val Gln Trp Tyr Lys Asp Asp Thr Pro Leu Ser Pro Ser Glu			
2500	2505	2510	
Lys Phe Lys Met Ser Leu Glu Gly Gln Met Ala Glu Leu Arg Ile Leu			
2515	2520	2525	
Arg Leu Met Pro Ala Asp Ala Gly Val Tyr Arg Cys Gln Ala Gly Ser			
2530	2535	2540	
Ala His Ser Ser Thr Glu Val Thr Val Glu Ala Arg Glu Val Thr Val			
2545	2550	2555	2560
Thr Gly Pro Leu Gln Asp Ala Glu Ala Thr Glu Glu Gly Trp Ala Ser			
2565	2570	2575	
Phe Ser Cys Glu Leu Ser His Glu Asp Glu Glu Val Glu Trp Ser Leu			
2580	2585	2590	
Asn Gly Met Pro Leu Tyr Asn Asp Ser Phe His Glu Ile Ser His Lys			
2595	2600	2605	
Gly Arg Arg His Thr Leu Val Leu Lys Ser Ile Gln Arg Ala Asp Ala			
2610	2615	2620	
Gly Ile Val Arg Ala Ser Ser Leu Lys Val Ser Thr Ser Ala Arg Leu			
2625	2630	2635	2640
Glu Val Arg Val Lys Pro Val Val Phe Leu Lys Ala Leu Asp Asp Leu			
2645	2650	2655	
Ser Ala Glu Glu Arg Gly Thr Leu Ala Leu Gln Cys Glu Val Ser Asp			
2660	2665	2670	
Pro Glu Ala His Val Val Trp Arg Lys Asp Gly Val Gln Leu Gly Pro			
2675	2680	2685	
Ser Asp Lys Tyr Asp Phe Leu His Thr Ala Gly Thr Arg Gly Leu Val			
2690	2695	2700	
Val His Asp Val Ser Pro Glu Asp Ala Gly Leu Tyr Thr Cys His Val			
2705	2710	2715	2720

Gly Ser Glu Glu Thr Arg Ala Arg Val Arg Val His Asp Leu His Val
 2725 2730 2735
 Gly Ile Thr Lys Arg Leu Lys Thr Met Glu Val Leu Glu Gly Glu Ser
 2740 2745 2750
 Cys Ser Phe Glu Cys Val Leu Ser His Glu Ser Ala Ser Asp Pro Ala
 2755 2760 2765
 Met Trp Thr Val Gly Gly Lys Thr Val Gly Ser Ser Ser Arg Phe Gln
 2770 2775 2780
 Ala Thr Arg Gln Gly Arg Lys Tyr Ile Leu Val Val Arg Glu Ala Ala
 2785 2790 2795 2800
 Pro Ser Asp Ala Gly Glu Val Val Phe Ser Val Arg Gly Leu Thr Ser
 2805 2810 2815
 Lys Ala Ser Leu Ile Val Arg Glu Arg Pro Ala Ala Ile Ile Lys Pro
 2820 2825 2830
 Leu Glu Asp Gln Trp Val Ala Pro Gly Glu Asp Val Glu Leu Arg Cys
 2835 2840 2845
 Glu Leu Ser Arg Ala Gly Thr Pro Val His Trp Leu Lys Asp Arg Lys
 2850 2855 2860
 Ala Ile Arg Lys Ser Gln Lys Tyr Asp Val Val Cys Glu Gly Thr Met
 2865 2870 2875 2880
 Ala Met Leu Val Ile Arg Gly Ala Ser Leu Lys Asp Ala Gly Glu Tyr
 2885 2890 2895
 Thr Cys Glu Val Glu Ala Ser Lys Ser Thr Ala Ser Leu His Val Glu
 2900 2905 2910
 Glu Lys Ala Asn Cys Phe Thr Glu Glu Leu Thr Asn Leu Gln Val Glu
 2915 2920 2925
 Glu Lys Gly Thr Ala Val Phe Thr Cys Lys Thr Glu His Pro Ala Ala
 2930 2935 2940
 Thr Val Thr Trp Arg Lys Gly Leu Leu Glu Leu Arg Ala Ser Gly Lys
 2945 2950 2955 2960
 His Gln Pro Ser Gln Glu Gly Leu Thr Leu Arg Leu Thr Ile Ser Ala
 2965 2970 2975
 Leu Glu Lys Ala Asp Ser Asp Thr Tyr Thr Cys Asp Ile Gly Gln Ala
 2980 2985 2990
 Gln Ser Arg Ala Gln Leu Leu Val Gln Gly Arg Arg Val His Ile Ile
 2995 3000 3005
 Glu Asp Leu Glu Asp Val Asp Val Gln Glu Gly Ser Ser Ala Thr Phe
 3010 3015 3020
 Arg Cys Arg Ile Ser Pro Ala Asn Tyr Glu Pro Val His Trp Phe Leu
 3025 3030 3035 3040
 Asp Lys Thr Pro Leu His Ala Asn Glu Leu Asn Glu Ile Asp Ala Gln
 3045 3050 3055
 Pro Gly Gly Tyr His Val Leu Thr Leu Arg Gln Leu Ala Leu Lys Asp
 3060 3065 3070
 Ser Gly Thr Ile Tyr Phe Glu Ala Gly Asp Gln Arg Ala Ser Ala Ala
 3075 3080 3085
 Leu Arg Val Thr Glu Lys Pro Ser Val Phe Ser Arg Glu Leu Thr Asp
 3090 3095 3100
 Ala Thr Ile Thr Glu Gly Glu Asp Leu Thr Leu Val Cys Glu Thr Ser
 3105 3110 3115 3120
 Thr Cys Asp Ile Pro Met Cys Trp Thr Lys Asp Gly Lys Thr Leu Arg
 3125 3130 3135
 Gly Ser Ala Arg Cys Gln Leu Ser His Glu Gly His Arg Ala Gln Leu
 3140 3145 3150
 Leu Ile Thr Gly Ala Thr Leu Gln Asp Ser Gly Arg Tyr Lys Cys Glu
 3155 3160 3165
 Ala Gly Gly Ala Cys Ser Ser Ser Ile Val Arg Val His Ala Arg Pro
 3170 3175 3180
 Val Arg Phe Gln Glu Ala Leu Lys Asp Leu Glu Val Leu Glu Gly Gly
 3185 3190 3195 3200
 Ala Ala Thr Leu Arg Cys Val Leu Ser Ser Val Ala Ala Pro Val Lys

3205	3210	3215
Trp Cys Tyr Gly Asn Asn Val Leu Arg Pro Gly Asp Lys Tyr Ser Leu		
3220	3225	3230
Arg Gln Glu Gly Ala Met Leu Glu Leu Val Val Arg Asn Leu Arg Pro		
3235	3240	3245
Gln Asp Ser Gly Arg Tyr Ser Cys Ser Phe Gly Asp Gln Thr Thr Ser		
3250	3255	3260
Ala Thr Leu Thr Val Thr Ala Leu Pro Ala Gln Phe Ile Gly Lys Leu		
3265	3270	3275
Arg Asn Lys Glu Ala Thr Glu Gly Ala Thr Ala Thr Leu Arg Cys Glu		
3285	3290	3295
Leu Ser Lys Thr Ala Pro Val Glu Trp Arg Lys Gly Ser Glu Thr Leu		
3300	3305	3310
Arg Asp Gly Asp Arg Tyr Cys Leu Arg Gln Asp Gly Ala Met Cys Glu		
3315	3320	3325
Leu Gln Ile Arg Gly Leu Ala Met Val Asp Ala Ala Glu Tyr Ser Cys		
3330	3335	3340
Val Cys Gly Glu Glu Arg Thr Ser Ala Ser Leu Thr Ile Arg Pro Met		
3345	3350	3355
Pro Ala His Phe Ile Gly Arg Leu Arg His Gln Glu Ser Ile Glu Gly		
3365	3370	3375
Ala Thr Ala Thr Leu Arg Cys Glu Leu Ser Lys Ala Ala Pro Val Glu		
3380	3385	3390
Trp Arg Lys Gly Arg Glu Ser Leu Arg Asp Gly Asp Arg His Ser Leu		
3395	3400	3405
Arg Gln Asp Gly Ala Val Cys Glu Leu Gln Ile Cys Gly Leu Ala Val		
3410	3415	3420
Ala Asp Ala Gly Glu Tyr Ser Cys Val Cys Gly Glu Glu Arg Thr Ser		
3425	3430	3435
Ala Thr Leu Thr Val Lys Ala Leu Pro Ala Lys Phe Thr Glu Gly Leu		
3445	3450	3455
Arg Asn Glu Glu Ala Val Glu Gly Ala Thr Ala Met Leu Trp Cys Glu		
3460	3465	3470
Leu Ser Lys Val Ala Pro Val Glu Trp Arg Lys Gly Pro Glu Asn Leu		
3475	3480	3485
Arg Asp Gly Asp Arg Tyr Ile Leu Arg Gln Glu Gly Thr Arg Cys Glu		
3490	3495	3500
Leu Gln Ile Cys Gly Leu Ala Met Ala Asp Ala Gly Glu Tyr Leu Cys		
3505	3510	3515
Val Cys Gly Gln Glu Arg Thr Ser Ala Thr Leu Thr Ile Arg Ala Leu		
3525	3530	3535
Pro Ala Arg Phe Ile Glu Asp Val Lys Asn Gln Glu Ala Arg Glu Gly		
3540	3545	3550
Ala Thr Ala Val Leu Gln Cys Glu Leu Asn Ser Ala Ala Pro Val Glu		
3555	3560	3565
Trp Arg Lys Gly Ser Glu Thr Leu Arg Asp Gly Asp Arg Tyr Ser Leu		
3570	3575	3580
Arg Gln Asp Gly Thr Lys Cys Glu Leu Gln Ile Arg Gly Leu Ala Met		
3585	3590	3595
Ala Asp Thr Gly Glu Tyr Ser Cys Val Cys Gly Gln Glu Arg Thr Ser		
3605	3610	3615
Ala Met Leu Thr Val Arg Ala Leu Pro Ile Lys Phe Thr Glu Gly Leu		
3620	3625	3630
Arg Asn Glu Glu Ala Thr Glu Gly Ala Thr Ala Val Leu Arg Cys Glu		
3635	3640	3645
Leu Ser Lys Met Ala Pro Val Glu Trp Trp Lys Gly His Glu Thr Leu		
3650	3655	3660
Arg Asp Gly Asp Arg His Ser Leu Arg Gln Asp Gly Ala Arg Cys Glu		
3665	3670	3675
Leu Gln Ile Arg Gly Leu Val Ala Glu Asp Ala Gly Glu Tyr Leu Cys		
3685	3690	3695

Met Cys Gly Lys Glu Arg Thr Ser Ala Met Leu Thr Val Arg Ala Met
 3700 3705 3710
 Pro Ser Lys Phe Ile Glu Gly Leu Arg Asn Glu Glu Ala Thr Glu Gly
 3715 3720 3725
 Asp Thr Ala Thr Leu Trp Cys Glu Leu Ser Lys Ala Ala Pro Val Glu
 3730 3735 3740
 Trp Arg Lys Gly His Glu Thr Leu Arg Asp Gly Asp Arg His Ser Leu
 3745 3750 3755 3760
 Arg Gln Asp Gly Ser Arg Cys Glu Leu Gln Ile Arg Gly Leu Ala Val
 3765 3770 3775
 Val Asp Ala Gly Glu Tyr Ser Cys Val Cys Gly Gln Glu Arg Thr Ser
 3780 3785 3790
 Ala Thr Leu Thr Val Arg Ala Leu Pro Ala Arg Phe Ile Glu Asp Val
 3795 3800 3805
 Lys Asn Gln Glu Ala Arg Glu Gly Ala Thr Ala Val Leu Gln Cys Glu
 3810 3815 3820
 Leu Ser Lys Ala Ala Pro Val Glu Trp Arg Lys Gly Ser Glu Thr Leu
 3825 3830 3835 3840
 Arg Gly Gly Asp Arg Tyr Ser Leu Arg Gln Asp Gly Thr Arg Cys Glu
 3845 3850 3855
 Leu Gln Ile His Gly Leu Ser Val Ala Asp Thr Gly Glu Tyr Ser Cys
 3860 3865 3870
 Val Cys Gly Gln Glu Arg Thr Ser Ala Thr Leu Thr Val Arg Ala Pro
 3875 3880 3885
 Gln Pro Val Phe Arg Glu Pro Leu Gln Ser Leu Gln Ala Glu Glu Gly
 3890 3895 3900
 Ser Thr Ala Thr Leu Gln Cys Glu Leu Ser Glu Pro Thr Ala Thr Val
 3905 3910 3915 3920
 Val Trp Ser Lys Gly Gly Leu Gln Leu Gln Ala Asn Gly Arg Arg Glu
 3925 3930 3935
 Pro Arg Leu Gln Gly Cys Thr Ala Glu Leu Val Leu Gln Asp Leu Gln
 3940 3945 3950
 Arg Glu Asp Thr Gly Glu Tyr Thr Cys Thr Cys Gly Ser Gln Ala Thr
 3955 3960 3965
 Ser Ala Thr Leu Thr Val Thr Ala Ala Pro Val Arg Phe Leu Arg Glu
 3970 3975 3980
 Leu Gln His Gln Glu Val Asp Glu Gly Gly Thr Ala His Leu Cys Cys
 3985 3990 3995 4000
 Glu Leu Ser Arg Ala Gly Ala Ser Val Glu Trp Arg Lys Gly Ser Leu
 4005 4010 4015
 Gln Leu Phe Pro Cys Ala Lys Tyr Gln Met Val Gln Asp Gly Ala Ala
 4020 4025 4030
 Ala Glu Leu Leu Val Arg Gly Val Glu Gln Glu Asp Ala Gly Asp Tyr
 4035 4040 4045
 Thr Cys Asp Thr Gly His Thr Gln Ser Met Ala Ser Leu Ser Val Arg
 4050 4055 4060
 Val Pro Arg Pro Lys Phe Lys Thr Arg Leu Gln Ser Leu Glu Gln Glu
 4065 4070 4075 4080
 Thr Gly Asp Ile Ala Arg Leu Cys Cys Gln Leu Ser Asp Ala Glu Ser
 4085 4090 4095
 Gly Ala Val Val Gln Trp Leu Lys Glu Gly Val Glu Leu His Ala Gly
 4100 4105 4110
 Pro Lys Tyr Glu Met Arg Ser Gln Gly Ala Thr Arg Glu Leu Leu Ile
 4115 4120 4125
 His Gln Leu Glu Ala Lys Asp Thr Gly Glu Tyr Ala Cys Val Thr Gly
 4130 4135 4140
 Gly Gln Lys Thr Ala Ala Ser Leu Arg Val Thr Glu Pro Glu Val Thr
 4145 4150 4155 4160
 Ile Val Arg Gly Leu Val Asp Ala Glu Val Thr Ala Asp Glu Asp Val
 4165 4170 4175
 Glu Phe Ser Cys Glu Val Ser Arg Ala Gly Ala Thr Gly Val Gln Trp

4180	4185	4190
Cys Leu Gln Gly Leu Pro Leu Gln Ser Asn Glu Val Thr Glu Val Ala		
4195	4200	4205
Val Arg Asp Gly Arg Ile His Thr Leu Arg Leu Lys Gly Val Thr Pro		
4210	4215	4220
Glu Asp Ala Gly Thr Val Ser Phe His Leu Gly Asn His Ala Ser Ser		
4225	4230	4235
Ala Gln Leu Thr Val Arg Ala Pro Glu Val Thr Ile Leu Glu Pro Leu		
4245	4250	4255
Gln Asp Val Gln Leu Ser Glu Gly Gln Asp Ala Ser Phe Gln Cys Arg		
4260	4265	4270
Leu Ser Arg Ala Ser Gly Gln Glu Ala Arg Trp Ala Leu Gly Gly Val		
4275	4280	4285
Pro Leu Gln Ala Asn Glu Met Asn Asp Ile Thr Val Glu Gln Gly Thr		
4290	4295	4300
Leu His Leu Leu Thr Leu His Lys Val Thr Leu Glu Asp Ala Gly Thr		
4305	4310	4315
Val Ser Phe His Val Gly Thr Cys Ser Ser Glu Ala Gln Leu Lys Val		
4325	4330	4335
Thr Ala Lys Asn Thr Val Val Arg Gly Leu Glu Asn Val Glu Ala Leu		
4340	4345	4350
Glu Gly Gly Glu Ala Leu Phe Glu Cys Gln Leu Ser Gln Pro Glu Val		
4355	4360	4365
Ala Ala His Thr Trp Leu Leu Asp Asp Glu Pro Val Arg Thr Ser Glu		
4370	4375	4380
Asn Ala Glu Val Val Phe Phe Glu Asn Gly Leu Arg His Leu Leu Leu		
4385	4390	4395
Leu Lys Asn Leu Arg Pro Gln Asp Ser Cys Arg Val Thr Phe Leu Ala		
4405	4410	4415
Gly Asp Met Val Thr Ser Ala Phe Leu Thr Val Arg Gly Trp Arg Leu		
4420	4425	4430
Glu Ile Leu Glu Pro Leu Lys Asn Ala Ala Val Arg Ala Gly Ala Gln		
4435	4440	4445
Ala Arg Phe Thr Cys Thr Leu Ser Glu Ala Val Pro Val Gly Glu Ala		
4450	4455	4460
Ser Trp Tyr Ile Asn Gly Ala Ala Val Gln Pro Asp Asp Ser Asp Trp		
4465	4470	4475
Thr Val Thr Ala Asp Gly Ser His Gln Ala Leu Leu Leu Arg Ser Ala		
4485	4490	4495
Gln Pro His His Ala Gly Glu Val Thr Phe Ala Cys Arg Asp Ala Val		
4500	4505	4510
Ala Ser Ala Arg Leu Thr Val Leu Gly Leu Pro Asp Pro Pro Glu Asp		
4515	4520	4525
Ala Glu Val Val Ala His Ser Ser His Thr Val Thr Leu Ser Trp Ala		
4530	4535	4540
Ala Pro Met Ser Asp Gly Gly Gly Leu Cys Gly Tyr Arg Val Glu		
4545	4550	4555
Val Lys Glu Gly Ala Thr Gly Gln Trp Arg Leu Cys His Glu Leu Val		
4565	4570	4575
Pro Gly Pro Glu Cys Val Val Asp Gly Leu Ala Pro Gly Glu Thr Tyr		
4580	4585	4590
Arg Phe Arg Val Ala Ala Val Gly Pro Val Gly Ala Gly Glu Pro Val		
4595	4600	4605
His Leu Pro Gln Thr Val Arg Leu Ala Glu Pro Pro Lys Pro Val Pro		
4610	4615	4620
Pro Gln Pro Ser Ala Pro Glu Ser Arg Gln Val Ala Ala Gly Glu Asp		
4625	4630	4635
Val Ser Leu Glu Leu Glu Val Val Ala Glu Ala Gly Glu Val Ile Trp		
4645	4650	4655
His Lys Gly Met Glu Arg Ile Gln Pro Gly Gly Arg Phe Glu Val Val		
4660	4665	4670

Ser Gln Gly Arg Gln Gln Met Leu Val Ile Lys Gly Phe Thr Ala Glu
 4675 4680 4685
 Asp Gln Gly Glu Tyr His Cys Gly Leu Ala Gln Gly Ser Ile Cys Pro
 4690 4695 4700
 Ala Ala Ala Thr Phe Gln Val Ala Leu Ser Pro Ala Ser Val Asp Glu
 4705 4710 4715 4720
 Ala Pro Gln Pro Ser Leu Pro Pro Glu Ala Ala Gln Glu Gly Asp Leu
 4725 4730 4735
 His Leu Leu Trp Glu Ala Leu Ala Arg Lys Arg Arg Met Ser Arg Glu
 4740 4745 4750
 Pro Thr Leu Asp Ser Ile Ser Glu Leu Pro Glu Glu Asp Gly Arg Ser
 4755 4760 4765
 Gln Arg Leu Pro Gln Glu Ala Glu Glu Val Ala Pro Asp Leu Ser Glu
 4770 4775 4780
 Gly Tyr Ser Thr Ala Asp Glu Leu Ala Arg Thr Gly Asp Ala Asp Leu
 4785 4790 4795 4800
 Ser His Thr Ser Ser Asp Asp Glu Ser Arg Ala Gly Thr Pro Ser Leu
 4805 4810 4815
 Val Thr Tyr Leu Lys Lys Ala Gly Arg Pro Gly Thr Ser Pro Leu Ala
 4820 4825 4830
 Ser Lys Val Gly Ala Pro Ala Ala Pro Ser Val Lys Pro Gln Gln Gln
 4835 4840 4845
 Gln Glu Pro Leu Ala Ala Val Arg Pro Pro Leu Gly Asp Leu Ser Thr
 4850 4855 4860
 Lys Asp Leu Gly Asp Pro Ser Met Asp Lys Ala Ala Val Lys Ile Gln
 4865 4870 4875 4880
 Ala Ala Phe Lys Gly Tyr Lys Val Arg Lys Glu Met Lys Gln Gln Glu
 4885 4890 4895
 Gly Pro Met Phe Ser His Thr Phe Gly Asp Thr Glu Ala Gln Val Gly
 4900 4905 4910
 Asp Ala Leu Arg Leu Glu Cys Val Val Ala Ser Lys Ala Asp Val Arg
 4915 4920 4925
 Ala Arg Trp Leu Lys Asp Gly Val Glu Leu Thr Asp Gly Arg His His
 4930 4935 4940
 His Ile Asp Gln Leu Gly Asp Gly Thr Cys Ser Leu Leu Ile Ala Gly
 4945 4950 4955 4960
 Leu Asp Arg Ala Asp Ala Gly Cys Tyr Thr Cys Gln Val Ser Asn Lys
 4965 4970 4975
 Phe Gly Gln Val Thr His Ser Ala Cys Val Val Val Ser Gly Ser Glu
 4980 4985 4990
 Ser Glu Ala Glu Ser Ser Ser Gly Gly Glu Leu Asp Asp Ala Phe Arg
 4995 5000 5005
 Arg Ala Ala Arg Arg Leu His Arg Leu Phe Arg Thr Lys Ser Pro Ala
 5010 5015 5020
 Glu Val Ser Asp Glu Glu Leu Phe Leu Ser Ala Asp Glu Gly Pro Ala
 5025 5030 5035 5040
 Glu Pro Glu Glu Pro Ala Asp Trp Gln Thr Tyr Arg Glu Asp Glu His
 5045 5050 5055
 Phe Ile Cys Ile Arg Phe Glu Ala Leu Thr Glu Ala Arg Gln Ala Val
 5060 5065 5070
 Thr Arg Phe Gln Glu Met Phe Ala Thr Leu Gly Ile Gly Val Glu Ile
 5075 5080 5085
 Lys Leu Val Glu Gln Gly Pro Arg Arg Val Glu Met Cys Ile Ser Lys
 5090 5095 5100
 Glu Thr Pro Ala Pro Val Val Pro Pro Glu Pro Leu Pro Ser Leu Leu
 5105 5110 5115 5120
 Thr Ser Asp Ala Ala Pro Val Phe Leu Thr Glu Leu Gln Asn Gln Glu
 5125 5130 5135
 Val Gln Asp Gly Tyr Pro Val Ser Phe Asp Cys Val Val Thr Gly Gln
 5140 5145 5150
 Pro Met Pro Ser Val Arg Trp Phe Lys Asp Gly Lys Leu Leu Glu Glu

5155	5160	5165
Asp Asp His Tyr Met Ile Asn Glu Asp Gln Gln Gly Gly His Gln Leu		
5170	5175	5180
Ile Ile Thr Ala Val Val Pro Ala Asp Met Gly Val Tyr Arg Cys Leu		
5185	5190	5195
Ala Glu Asn Ser Met Gly Val Ser Ser Thr Lys Ala Glu Leu Arg Val		
5205	5210	5215
Asp Leu Thr Ser Thr Asp Tyr Asp Thr Ala Ala Asp Ala Thr Glu Ser		
5220	5225	5230
Ser Ser Tyr Phe Ser Ala Gln Gly Tyr Leu Ser Ser Arg Glu Gln Glu		
5235	5240	5245
Gly Thr Glu Ser Thr Thr Asp Glu Gly Gln Leu Pro Gln Val Val Glu		
5250	5255	5260
Glu Leu Arg Asp Leu Gln Val Ala Pro Gly Thr Arg Leu Ala Lys Phe		
5265	5270	5275
Gln Leu Lys Val Lys Gly Tyr Pro Ala Pro Arg Leu Tyr Trp Phe Lys		
5285	5290	5295
Asp Gly Gln Pro Leu Thr Ala Ser Ala His Ile Arg Met Thr Gly Lys		
5300	5305	5310
Lys Ile Leu His Thr Leu Glu Ile Ile Ser Val Thr Arg Glu Asp Ser		
5315	5320	5325
Gly Gln Tyr Ala Ala Tyr Ile Ser Asn Ala Met Gly Ala Ala Tyr Ser		
5330	5335	5340
Ser Ala Arg Leu Leu Val Arg Gly Pro Asp Glu Pro Glu Glu Lys Pro		
5345	5350	5355
Ala Ser Asp Val His Glu Gln Leu Val Pro Pro Arg Met Leu Glu Arg		
5365	5370	5375
Phe Thr Pro Lys Lys Val Lys Gly Ser Ser Ile Thr Phe Ser Val		
5380	5385	5390
Lys Val Glu Gly Arg Pro Val Pro Thr Val His Trp Leu Arg Glu Glu		
5395	5400	5405
Ala Glu Arg Gly Val Leu Trp Ile Gly Pro Asp Thr Pro Gly Tyr Thr		
5410	5415	5420
Val Ala Ser Ser Ala Gln Gln His Ser Leu Val Leu Leu Asp Val Gly		
5425	5430	5435
Arg Gln His Gln Gly Thr Tyr Thr Cys Ile Ala Ser Asn Ala Ala Gly		
5445	5450	5455
Gln Ala Leu Cys Ser Ala Ser Leu His Val Ser Gly Leu Pro Lys Val		
5460	5465	5470
Glu Glu Gln Glu Lys Val Lys Glu Ala Leu Ile Ser Thr Phe Leu Gln		
5475	5480	5485
Gly Thr Thr Gln Ala Ile Ser Ala Gln Gly Leu Glu Thr Ala Ser Phe		
5490	5495	5500
Ala Asp Leu Gly Gly Gln Arg Lys Glu Glu Pro Leu Ala Ala Lys Glu		
5505	5510	5515
Ala Leu Gly His Leu Ser Leu Ala Glu Val Gly Thr Glu Glu Phe Leu		
5525	5530	5535
Gln Lys Leu Thr Ser Gln Ile Thr Glu Met Val Ser Ala Lys Ile Thr		
5540	5545	5550
Gln Ala Lys Leu Gln Val Pro Gly Gly Asp Ser Asp Glu Asp Ser Lys		
5555	5560	5565
Thr Pro Ser Ala Ser Pro Arg His Gly Arg Ser Arg Pro Ser Ser Ser		
5570	5575	5580
Ile Gln Glu Ser Ser Ser Glu Ser Glu Asp Gly Asp Ala Arg Gly Glu		
5585	5590	5595
Ile Phe Asp Ile Tyr Val Val Thr Ala Asp Tyr Leu Pro Leu Gly Ala		
5605	5610	5615
Glu Gln Asp Ala Ile Thr Leu Arg Glu Gly Gln Tyr Val Glu Val Leu		
5620	5625	5630
Asp Ala Ala His Pro Leu Arg Trp Leu Val Arg Thr Lys Pro Thr Lys		
5635	5640	5645

Ser Ser Pro Ser Arg Gln Gly Trp Val Ser Pro Ala Tyr Leu Asp Arg
 5650 5655 5660
 Arg Leu Lys Leu Ser Pro Glu Trp Gly Ala Ala Glu Ala Pro Glu Phe
 5665 5670 5675 5680
 Pro Gly Glu Ala Val Ser Glu Asp Glu Tyr Lys Ala Arg Leu Ser Ser
 5685 5690 5695
 Val Ile Gln Glu Leu Leu Ser Ser Glu Gln Ala Phe Val Glu Glu Leu
 5700 5705 5710
 Gln Phe Leu Gln Ser His His Leu Gln His Leu Glu Arg Cys Pro His
 5715 5720 5725
 Val Pro Ile Ala Val Ala Gly Gln Lys Ala Val Ile Phe Arg Asn Val
 5730 5735 5740
 Arg Asp Ile Gly Arg Phe His Ser Ser Phe Leu Gln Glu Leu Gln Gln
 5745 5750 5755 5760
 Cys Asp Thr Asp Asp Asp Val Ala Met Cys Phe Ile Lys Asn Gln Ala
 5765 5770 5775
 Ala Phe Glu Gln Tyr Leu Glu Phe Leu Val Gly Arg Val Gln Ala Glu
 5780 5785 5790
 Ser Val Val Val Ser Thr Ala Ile Gln Glu Phe Tyr Lys Lys Tyr Ala
 5795 5800 5805
 Glu Glu Ala Leu Leu Ala Gly Asp Pro Ser Gln Pro Pro Pro Pro Pro
 5810 5815 5820
 Leu Gln His Tyr Leu Glu Gln Pro Val Glu Arg Val Gln Arg Tyr Gln
 5825 5830 5835 5840
 Ala Leu Leu Lys Glu Leu Ile Arg Asn Lys Ala Arg Asn Arg Gln Asn
 5845 5850 5855
 Cys Ala Leu Leu Glu Gln Ala Tyr Ala Val Val Ser Ala Leu Pro Gln
 5860 5865 5870
 Arg Ala Glu Asn Lys Leu His Val Ser Leu Met Glu Asn Tyr Pro Gly
 5875 5880 5885
 Thr Leu Glu Ala Leu Gly Glu Pro Ile Arg Gln Gly His Phe Ile Val
 5890 5895 5900
 Trp Glu Gly Ala Pro Gly Ala Arg Met Pro Trp Lys Gly His Asn Arg
 5905 5910 5915 5920
 His Val Phe Leu Phe Arg Asn His Leu Val Ile Cys Lys Pro Arg Arg
 5925 5930 5935
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Val Thr Gly Thr Ser Glu Ala Pro Ala Val Pro Pro Arg Val Pro Gln		
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Gln Ser Glu Glu Gln Glu Ala Arg Ala Glu Ser Pro Leu Pro Gln			
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<211> 17
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<213> Artificial Sequence

<220>
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<222> 1
<223> The L at position 1 can be I or V.

<221> VARIANT
<222> 3
<223> The amino acid at position 3 can be any amino acid
except P.

<221> VARIANT
<222> 5
<223> The amino acid at position 5 can be any amino acid
except P.

<221> VARIANT
<222> (6)...(0)
<223> The F at position 6 can be Y, W, M, G, S, T, N, or
H.

<221> VARIANT
<222> 7
<223> The S at position 7 can be G or A.

<221> VARIANT
<222> 8
<223> The amino acid at position 8 can be any amino acid

except P or W.

<221> VARIANT
<222> (9)...(9)
<223> The L at position 9 can be I, V, C, A, or T.

<221> VARIANT
<222> (10)...(10)
<223> The amino acid at position 10 can be any amino acid
except P or D.

<221> VARIANT
<222> (11)...(11)
<223> The amino acid at position 11 can be any amino
acid.

<221> VARIANT
<222> (12)...(12)
<223> The G at position 12 can be S, T, A,
C, L, I, V, M, F, or Y.

<221> VARIANT
<222> (13)...(13)
<223> The amino acid at position 13 can be any amino
acid and as few as 5, up to 18.

<221> VARIANT
<222> (14)...(14)
<223> The L at position 14 can be I, V, M, F, Y,
W, C, S, T, A, or R.

<221> VARIANT
<222> (15)...(15)
<223> The A at position 15 can be I, V, or P.

<221> VARIANT
<222> (16)...(16)
<223> The L at position 16 can be I, V, M, F, A, G,
C, K, or R.

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1 5 10 15
Lys

<210> 8
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT

<222> 1
<223> The L at position 1 can be I, V, M, F, Y,
or C.

<221> VARIANT
<222> 2
<223> The amino acid at position 2 can be any amino
acid.

<221> VARIANT
<222> 3
<223> The H at position 3 can be Y.

<221> VARIANT
<222> 4
<223> The amino acid at position 4 can be any amino
acid.

<221> VARIANT
<222> 6
<223> The L at position 6 can be I, V, M, F, or Y.

<221> VARIANT
<222> 8
<223> The amino acid at position 8 can be any 2
amino acids.

<221> VARIANT
<222> (10)...(12)
<223> The amino acid at positions 10, 11, and 12 can be
any three
amino acids selected from the group of L,
I, V, M, F, Y, C, and
T.

<400> 8
Leu Xaa His Xaa Asp Leu Lys Xaa Asn Xaa Xaa
1 . 5 10

<210> 9
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> The L at position 1 can be I, V, M, F, Y,
or C.

<221> VARIANT
<222> 2
<223> The amino acid at position 2 can be any amino
acid.

<221> VARIANT
<222> 3
<223> The H at position 3 can be Y.

<221> VARIANT
<222> 4
<223> The amino acid at position 4 can be any amino acid.

<221> VARIANT
<222> 6
<223> The L at position 6 can be I, V, M, F, or Y.

<221> VARIANT
<222> 7
<223> The R at position 7 can be S, T, A, or C.

<221> VARIANT
<222> (8)...(9)
<223> The amino acid at positions 8 and 9 can be any 2 amino acids.

<221> VARIANT
<222> (10)...(12)
<223> The amino acid at positions 10, 11, and 12 can be any 3 amino acids selected from L, I, V, M, F, Y, and C.

<400> 9
Leu Xaa His Xaa Asp Leu Arg Xaa Xaa Asn Xaa Xaa Xaa
1 5 10